

Published every Saturday by the Simmons-Boardman Publishing Company, 34 North Crystal Street, East Stroudsburg, Pa., with executive offices at 30 Church Street, New York

All communications should be addressed to the New York Office, 30 Church Street

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The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

Subscriptions, including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, \$6.00. Foreign countries, not including daily editions \$8.00.

Subscriptions for the fourth issue each month only (published in two sections, the second of which is the Motor Transport Section) payable in advance and postage free; United States, Mexico and Canada, \$1.00; foreign countries, \$2.00. Single copies, 25 cents each.

# Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name Registered U. S. Patent Office.

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April 5, 1930

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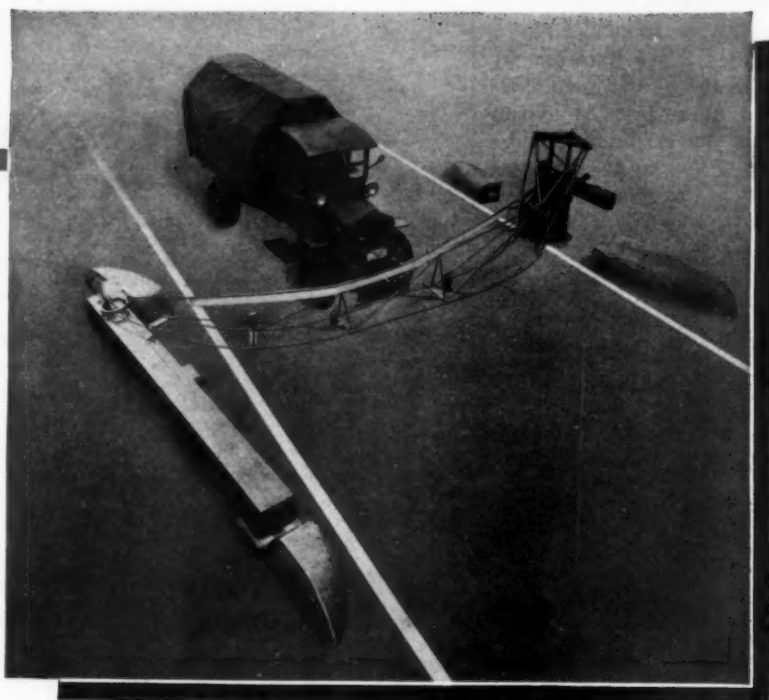
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Nation-wide  
Grade Separation  
Is Impractical  
But...



## CROSSING HAZARDS can be removed!



At the moment of contact with the barrier the wire rope gives an even bearing against the car. The snubber has not started to act.



Compare the position of the snubber in this picture with its position in the illustration above. Here the snubber has moved to take up the shock.

**G**RADE separations, being urged today, would require generations of construction work. At a cost of hundreds of millions of dollars, railroad right-of-ways in many places would practically require rebuilding.

Wide-spread crossing safety to satisfy both railroads and motoring public must be complete as well as economically possible. In THE HIGHWAY GUARDIAN---a positive, yielding crossing safeguard---such protection is provided at a cost that is not prohibitive.

This automatic, yielding barrier removes the hazard at crossings by forcibly keeping vehicles off the tracks. If, through carelessness or recklessness, it is hit by a machine, a yielding snubber takes up the shock and gradually but surely the vehicle is brought to a stop without damage to the machine or injury to occupants.

Complete protection such as THE HIGHWAY GUARDIAN provides is available at once. Installation is simple, relatively inexpensive and can be made without long delay. The first cost is but a fraction of the expense involved in grade separations, and maintenance is low enough to be considered negligible. Write for details of construction, operation and installation.

The fundamental idea from which THE HIGHWAY GUARDIAN has been developed was the ingenious conception of Mr. Joseph B. Strauss, eminent consulting engineer and builder of many of the world's famous bridges.

**FRANKLIN RAILWAY SUPPLY CO., Inc.**  
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# THE HIGHWAY GUARDIAN

THE CROSSING GATE THE MOTORIST CANNOT CRASH

# Railway Age

Vol. 88, No. 14

April 5, 1930

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## Valuation or "Rate Base?"

SENATOR Howell of Nebraska has introduced in Congress a bill (S-4005) to amend Sections 15-A, 5 and 19-A of the Interstate Commerce act. It is understood that he was assisted in writing the bill by Commissioner Eastman and Donald R. Richberg, attorney for the National Conference on Railroad Valuation, a radical organization which always has favored the lowest possible valuation. Is the bill endorsed by a majority of the members of the Interstate Commerce Commission? If so, they favor abandonment of all efforts to make a railroad valuation in accordance with the principles laid down by the Supreme court of the United States.

The authors of the bill virtually admit by the language used in it that it does not provide for a valuation. It requires the commission to determine, not "valuations," but "rate bases," which heretofore have been unknown to the law of this country. In the O'Fallon case the Supreme court held that in making a valuation the commission must give weight to present cost of reproduction. The Howell bill is obviously a device for enabling the commission to evade the effect of this decision. The LaFollette act of 1913, which became Section 19-A of the Interstate Commerce act, evidently was intended to cause a valuation to be made in accordance with the constitutional rights of the railways as previously and since defined by the Supreme court. The commission favored the passage of the LaFollette act. If a majority of its members now favor the Howell act, it is because they wish to avoid making a valuation in accordance with the legislation which the commission itself helped to get passed in 1913.

### Formula for a "Rate Base"

All that it is necessary to do to show that the proposed "rate base" would not be a valuation is to state the way in which it would be made. The principal factors in it as provided in the Howell bill, would be as follows:

1. Cost of reproduction new of property (other than land) owned on valuation date, as ascertained and reported by the commission under Section 19-A. This means "cost of reproduction" at 1914 costs, and not cost of reproduction at present costs, consideration of which is required by the decision of the Supreme court in the O'Fallon case.

2. Value of land on original valuation date, as re-

ported by the commission. This means that if the original valuation date of a railway was 1916 no allowance would be made for any increase in the value of its land that has occurred since that date, although in the Minnesota rate case the Supreme court plainly held that in a valuation the present value of land must be considered.

3. Any increase or decrease which the commission finds was or should have been recorded, in accordance with its requirements, in the property investment account since the original valuation date.

4. Deduction of any depreciation which the commission finds was or should have been recorded up to the date of the establishment of the rate base. This would leave the commission free to deduct, in arriving at a rate base, either the depreciation a railway already has recorded in its accounts, or the much greater depreciation which the commission heretofore has assumed in its valuation work has accrued throughout the past life of railway properties.

The adoption of the above formula, and especially the parts of it relating to depreciation, obviously would give the commission a broad discretion in arriving at the rate base of each railway. In the main the principles and methods used would be those that were favored by the commission in its decision in the O'Fallon case, which was condemned by the Supreme court.

The bill further provides that the commission shall so adjust rates "that operating carriers as a whole (or as a whole in each of such rate groups or territories as the commission may from time to time designate) will, under honest, efficient and economical management and reasonable expenditures for maintenance of way, structures and equipment, earn an aggregate annual net railway operating income equal as nearly as may be to a fair return upon the aggregate of their contemporaneous rate bases." In determining what percentage of such aggregate rate bases constitutes a fair return the commission would be required to "give due consideration, among other things, (1) to the transportation needs of the country; (2) to the necessity (under honest, efficient and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation, and, (3) to the need for furnishing transportation service to shippers and travelers at the lowest rates consistent with adequate service and



desirable extensions and improvements thereof." These are virtually the provisions of Section 15-A of the Transportation act of 1920, except that the words "rate base" are substituted for "valuation," and that there is added the significant declaration as to the need for the "lowest rates consistent with adequate service," etc.

### *What Would Be a "Fair Return?"*

The changes made by the proposed legislation in the recapture provisions of the Transportation act will not be considered now. We will confine ourselves at present to their probable effect upon the regulation of rates. A "rate base" arrived at in accordance with the formula above outlined would not be a valuation in any sense in which the word "valuation" ever has been used by the Supreme court. It is provided, however, that the carriers shall be allowed to earn a "fair return" upon their "aggregate rate base."

What is a "fair return" upon a "rate base"? The only intimation as to what is meant is given in the proposed new recapture provisions, under which each individual carrier would be allowed the untrammelled use of a return of six per cent upon its rate base, if it could earn it, as, in the existing law, it is allowed similar use of 6 per cent on its valuation. The commission has held that  $5\frac{3}{4}$  per cent would be a fair return upon the aggregate valuation of a group of carriers, and it seems a reasonable inference, from the provisions of the Howell bill, that its authors assumed that  $5\frac{3}{4}$  per cent would be a fair return upon the aggregate rate base of a group of carriers. There is, however, no legal ground whatever for this assumption. A "rate base" arrived at as proposed would not be a valuation. All the courts ever have held regarding fair return is that railways and public utilities are entitled to "a fair return upon a fair valuation." It necessarily follows that what return upon a rate base would be fair would depend entirely upon how closely the rate base approximated a fair valuation, and that never could be known without a fair valuation having been made.

Suppose that this legislation should be adopted, and that the commission should then arrive at its aggregate rate base and fix rates enabling the carriers to earn a return of barely  $5\frac{3}{4}$  per cent upon it. A rate base arrived at in accordance with the Howell bill would necessarily be less than a fair valuation made in accordance with the decisions of the Supreme court, and therefore  $5\frac{3}{4}$  per cent on the rate base necessarily would be less than a fair return upon a fair valuation. Could the carriers then go into court and prove their claim to a larger return? As a matter of law, they could do so only by establishing the true value of their properties and showing that they were not earning a fair return on that true value.

It was complained by the commission and radical

public men prior to 1913 that a sound policy of regulation of rates was impossible because of claims made by the railways in rate cases as to the value of their properties, and it was contended by them that, in consequence, a valuation of all railway properties by the commission should be made. The LaFollette act of 1913 authorized this, and thirteen years of time and \$160,000,000 of government and railway money have since been expended in an attempt to carry out the provisions of that act. And now it is proposed to virtually restore the very conditions which existed prior to 1913, and to leave it to the railways to prove the valuation of their properties in rate cases, instead of using a valuation made by the commission. The commission, for its own convenience, could have established so-called "rate bases," prior to 1913, and they would have had just as much standing in a court of law as the "rate bases" that it is now asking Congress to direct it to establish.

### *The Commission and the Law*

The entire history of valuation shows conclusively that the commission before 1913 and for some years afterward intended to make valuations in accordance with the decisions of the Supreme court. Why did it abandon this policy in the O'Fallon case, and why, now that the Supreme court has condemned its decision in that case, is Congress asked to change the LaFollette law? The commission doubtless would have observed the principles of valuation enunciated by the Supreme court and the provisions of the LaFollette act if the result would have been a low valuation of the railroads, and legislation is now sought authorizing it to establish rate bases because it has been found that observance of the principles laid down by the Supreme court and the provisions of the LaFollette act would result in a relatively much higher valuation than the commission wants to make. It seems determined to regulate the earnings of the railways, not in accordance with the law of the land, but in accordance with its own ideas as to what they should be; and apparently it wants Congress to keep on legislating until the statutes will fit the commission's views, regardless of what the courts may hold are the constitutional rights of the railways.

The inconsistency of a policy under which the state and national governments would allow public utilities to continue to earn returns upon cost of reproduction valuations, and under which, at the same time, regulation of the income of the railways would be based upon so-called "rate bases" relatively much lower is obvious. And yet, it is doubtful if the net operating income earned by the railways would be much affected by the passage of the Howell bill. The commission evidently is determined not to observe the provisions of the LaFollette act and the decisions of the Supreme court. If the Howell bill is not passed the commission



doubtless will continue to regulate rates regardless of law and in accordance with its own ideas of expediency. If the Howell bill is passed it will merely authorize the commission to regulate in the way that it evidently intends to regulate anyway. The railways will still have their constitutional right to protection from confiscation, and it could hardly be worth less to them after the passage of the Howell bill than it is now. The commission will observe the law as long as the law suits it. As soon as the law does not suit the commission past experience shows that the commission will disregard it. Why bother so much, then, about mere provisions of law? After all, nothing much is involved excepting the property rights and the future of all the railways of the United States.

## River Versus Rail Service

**T**HAT rail transportation is still able to compete with river transportation is reflected in the annual report of rail and river tonnage for 1929 prepared by the traffic bureau of the St. Louis Chamber of Commerce, which shows that while the railroads carried 2,113,013 tons more of freight into St. Louis during 1929, as compared with 1928, the river boats carried 195,763 tons less in 1929 than in the previous year. In 1929 the railroads handled a total of 47,470,267 tons of freight into this city, while the boat lines, including the Eagle Packet Company, which operates on the Illinois and Mississippi rivers, and the Mississippi-Warrior Service, which operates on the Mississippi, hauled 147,939 tons. The outbound movement shows a similar condition, the railroad tonnage being 35,655,113 in 1929 as compared with 34,457,056 in 1928, whereas the boat tonnage decreased from 339,279 in 1928 to 219,018 in 1929.

Several conditions contributed to the decrease in boat traffic among which are a general falling off in the movement of grain, low water and the loss of bauxite ore traffic. Owing to the drop in grain exports in 1929, much of the grain was left in interior elevators instead of being moved to the Gulf and thereby lessened the outbound shipments from St. Louis. The second circumstance, low water, reduced both the inbound and outbound movement during a period of 10 weeks commencing in August. In this period the barge lines were unable to operate to their greatest capacity and were forced to refuse much traffic.

The third and most important factor was the loss of traffic in bauxite ore, a raw material which has been transported by the Mississippi-Warrior Service from New Orleans, La., to St. Louis, where it is used in the manufacture of aluminum. For some time the barge rate for this commodity was considerably lower than the rail rate and attracted the business, but in 1928 the rail rate was reduced and the railroads have since

been able to secure some of the movement, although the barge rate is still less. Another incident which helped to return this traffic to the railroads was the opening of the Louisiana Terminal at Belle Chasse, La., below New Orleans, at which point there is no tipple charge and from which the ore can be moved to St. Louis on a through rate without another tipple charge at the latter point. If the ore from South America is unloaded at the New Orleans public dock, used by the barge line, however, there is a tipple charge of 75 cents a ton at New Orleans and another at St. Louis, both of which are assessed against the shipper. These charges bring the total barge rate to approximately the same level as the rail rate.

## The Revolution in Passenger Traffic

**E**STIMATES based upon figures of railway surcharge collections in 1929 indicate that in that year the railways, for the first time in history, received more revenues from their sleeping and parlor car passengers than from their day-coach passengers. Out of total passenger revenues amounting to 874 million dollars, it appears that the Class I railways received approximately 444 million dollars, or 51 per cent, from sleeping and parlor car passengers, while the remainder—430 million dollars, or 49 per cent—was derived from day-coach traffic.

In 1921 sleeping and parlor car traffic paid about 359 million dollars, or only 31 per cent of the total passenger revenues of 1,154 million dollars received. By 1928 revenues from sleeping and parlor car traffic, after a steady relative increase, had grown to 48 per cent of total passenger earnings and in 1929, as stated, these revenues for the first time exceeded the earnings from day-coach traffic.

These figures throw considerable light upon the losses in passenger traffic which the railways have suffered in recent years. Revenues from sleeping and parlor car passengers, amounting in 1929 to 444 million dollars, have been exceeded but once in the last nine years, and represented an increase of 85 million dollars over those of 1921. Day-coach passenger revenues, on the other hand, totaling 430 million dollars in 1929, were the lowest of the last nine years, and showed a reduction of 365 million dollars under those of 1921.

The changes in railway passenger traffic which have occurred in the past eight years are perhaps best summarized by the statement that since 1921 there has been an increase of 24 per cent in the revenues received by the steam lines from their sleeping and parlor car patrons, and a reduction of 46 per cent in the revenues received from day-coach passengers.

*Burlington Completes*

## Centralized Control System

*on Nine Miles of Double Track*

*Train operation by signal indication in either direction on both tracks—Two interlockings removed*

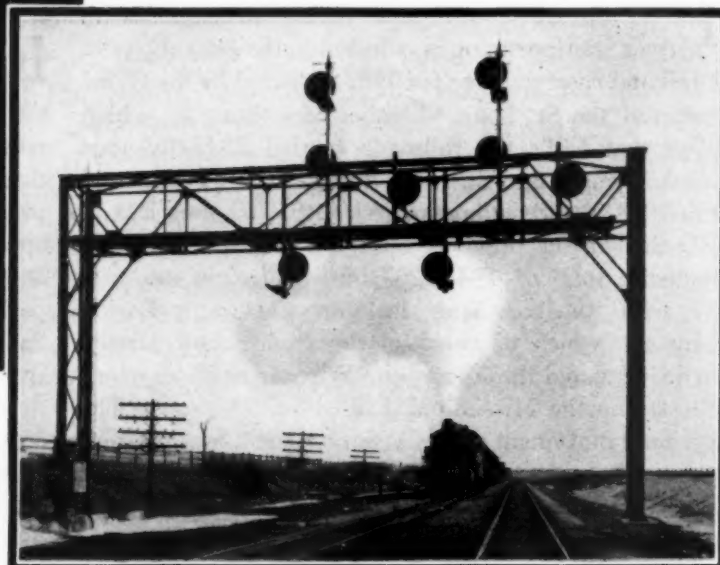
By W. F. Zane

Signal Engineer, Chicago, Burlington & Quincy, Chicago



*The Control Machine at Rochelle*

*Right—Both Tracks Are Signaled for Either Direction*



IN pursuance of a policy of increasing efficiency economically, and at the same time promoting safety of operation, the Chicago, Burlington & Quincy has installed a centralized-control system on a nine-mile section of double track between Flag Center, Ill., and Steward Junction, on its main line between Chicago and St. Paul, Minn. The control machine is located at Rochelle, Ill., three miles from Steward Junction, the west end of the territory.

Previous to the present installation, this territory was operated under a double-track automatic block system, employing semaphore signals of the lower-quadrant, two-position type. At Steward Junction, a mechanical interlocking plant handled the end of double track as well as a junction with the Chicago, Milwaukee, St. Paul & Pacific, which plant required an operator for each track. At Flag Center a similar plant with the same number of operators controlled the end of double track, and also handled the junction switches for the Burlington's branch to Rockford, Ill. The Milwaukee operates branch-line service over Burlington rails from Steward Junction to Flag Center, and thence over the Rockford line to its own line at Davis Junction.

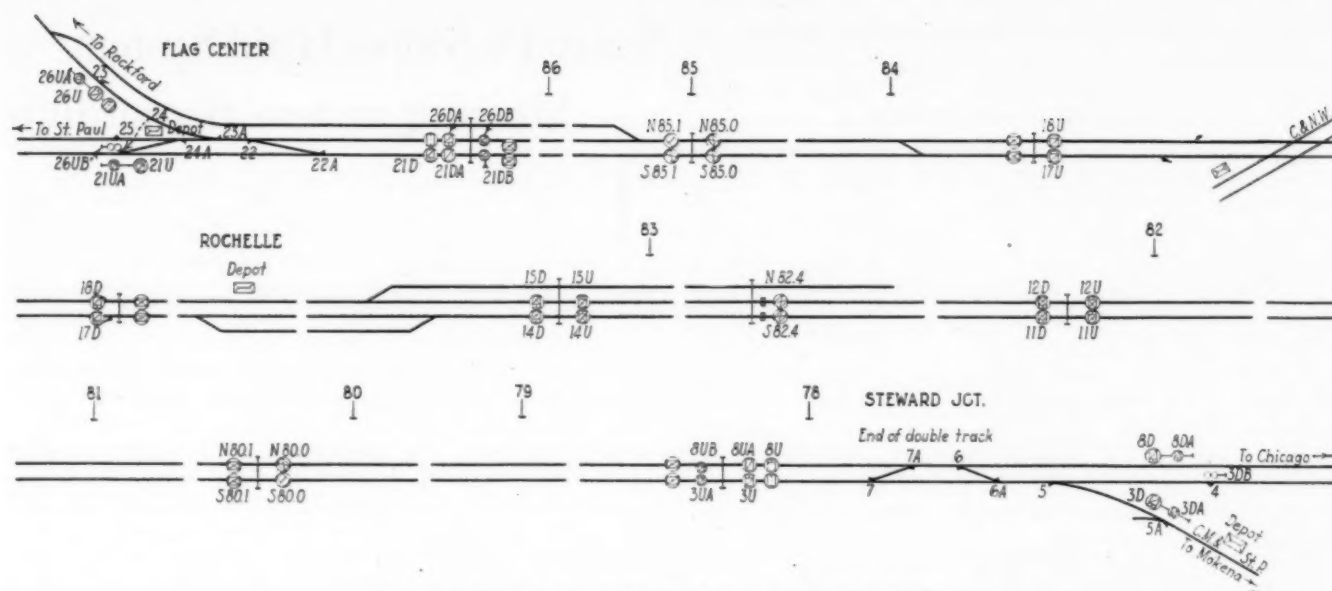
Track construction is of 90 and 110-lb. rail with washed gravel ballast. The ruling grade is 0.49 per cent westbound and 0.42 eastbound, with a maximum curvature of 2 deg., while all curves are comparatively short.

The traffic includes 35 scheduled trains daily besides

### **Economies Accomplished by Centralized Control Installation**

PAST OPERATING AND MAINTENANCE COSTS	
Six operators per year .....	\$11,036.
Operating charges for supplies per year .....	500.
Maintenance charges per year .....	1,800.
Interest, depreciation, etc., per year .....	4,103.
Operating charges, primary battery per year .....	684.
Total operating and maintenance charges .....	\$18,123.
PRESENT OPERATING AND MAINTENANCE COSTS	
Operating charges for supplies per year .....	\$ 50.
Maintenance charges per year .....	1,800.
Interest, depreciation, etc., per year .....	6,472.
Operating charges for charging current .....	300.
One signal helper per year .....	1,095.
Total operating and maintenance charges .....	\$9,717.
Net yearly saving .....	\$8,406.

extra freight trains, the number of which fluctuates with the movement of coal. The Burlington operates 6



### The Track and Signal Plan of the Controlled Territory

through and 5 local passenger trains each way daily, while the Milwaukee has a local passenger each way daily, the local service on both roads being gas-electric motor cars. The Burlington also operates 3 through freight trains and the Milwaukee one such train each way daily. Also the Burlington has one local freight each way daily and another every second day. In addition a considerable number of extra coal trains are operated during certain seasons.

### New Method of Operation

By the installation of the centralized control system, it was possible to control remotely the two interlocking plants at the ends of the double track, and eliminate the six operators. The signaling of each track in each

direction and the use of A.P.B. circuits, made it possible to handle trains on either track in parallel movement, thus relieving directional congestion as well as enabling a fast train to be run around a slower one and keep both moving. This complete flexibility of operation is obtained without the use of train orders, all train movements being made on signal indication only. The tangible economies accomplished by the new centralized control installation are shown in the accompanying tables which give a comparison between the old arrangement and the new.

The cost of the project was \$65,815, so that the saving derived represents a 12.7 per cent return on the investment. In addition, there is the intangible saving resulting from increased ease of movement, a factor



### The Power Switch Machines Are Equipped for Dual Control



which should be especially evident during periods of increased traffic.

#### Operation of the System

The central machine, located in the office at Rochelle, governs the starting signals out of Rochelle on all the main tracks, the signals on all main tracks protecting the station limits and the interlocking plants referred to. This machine has 6 switch, 2 derail, 10 signal levers and 10 spare spaces. The indication on the machine panel consists of a track diagram with complete track occupancy and approach annunciator lights, normal and reverse derail and switch lights, directional arrow signal lights and a single-stroke bell to call attention to the approach of a train. Miniature mechanically-controlled switch points on the panel complete the field reproduction on the machine. A train graph, mounted on top of the machine, makes a graphic record of all train movements.

The entire signal arrangement was changed. The semaphore signals were retired and Type S-A single lens, three-color, color-light signals installed on two-track signal bridges. The circuits are of the signal company's standard design, modified to meet the requirements of the railroad. The signals are of the stick type, complete approach, route and detector locking being used. In fact, interlocking practice was followed. The bridges were located so as to obtain as nearly uniform blocks as possible in both directions on each track, the bridges resting on pre-cast foundations made at the concrete plant and set by crane. This installation was designed to secure a maximum of flexibility, safety and speed of operation, and to be applicable not only for the present operation conditions but to provide also for future expansion of traffic. Since the installation results have been very satisfactory.

The switch machines are Model 5-B dual-control type with full lock-rod protection when on power operation, but not when on hand throw. The machines are placed on top of ties with very little framing, which locates them above the ground line and reduces frost trouble. Power for the operation of signals, switch machines and line control is provided from Exide storage battery, charged from the 220-volt line by Union rectifiers, the power being bought from the local power company at Rochelle.

The equipment for the centralized-control system including the control machine, the switch machines, signals and detailed apparatus was furnished by the General Railway Signal Company, and was installed by the regular signal construction forces of the Chicago, Burlington & Quincy.

## Sante Fe Stores Hold System Meeting at San Bernardino

THE purchasing and stores departments of the Atchison, Topeka & Santa Fe system held a four-day meeting at San Bernardino, Cal., this month, which was attended by over 250 delegates, not counting many wives and other members of the delegates' families. The meeting was the occasion of the twelfth annual convention held by these departments for the purpose of considering departmental problems and policies, and of promoting an acquaintanceship which is considered important in the efficient operation of so large a railway system. The meetings were presided over by H. E. Ray, general storekeeper, and included, among the visitors and guests: M. J. Collins, general purchasing agent of the system; J. J. Conn, assistant general purchasing agent; John Purcell, assistant to the operating vice-president; C. T. Ripley, chief mechanical engineer; H. S. Wall, mechanical superintendent, Coast lines; F. A. Isaacson, engineer of car construction; J. A. Christie, superintendent; C. G. Fluhr, superintendent; H. P. Anewalt, general freight agent; Isaiah Hale, safety superintendent; F. J. MacKie, assistant general manager; Frank Wood, general transportation inspector; W. G. Hunt, auditor, Coast lines; H. G. Whyman, E. E. Ball and W. W. Wilson, division engineers; E. M. Roush, general foreman; also J. G. Hunter, material supervisor; A. Moreton, purchasing agent; R. S. Belcher, manager of timber-treating plants; E. Winans, signal engineer, Coast lines, and J. Pullar, master mechanic.

All of these officers spoke before the meetings, and several papers were presented and discussed, dealing with the problems and conditions relating to the handling of locomotive and car material, track and bridges, building material, and the operation of supply trains. There were also papers on accounting, general material conditions, on safety, on the importance of efficient car handling, on warehouse problems, on rails and ties, on the handling of grain doors and on waste and safety. The program was arranged with the assistance of K. R. Stewart, the resident storekeeper.

In a paper on rails and ties, J. A. Swan, general stores clerk, sketched the growth of the Santa Fe as reflected by its rail records. In 1880, the Santa Fe was buying 48-lb. and 52-lb. rail. The road began to purchase 61-lb. rail in 1890; 75-lb. rail in 1900 and 90-lb. rail in 1910. For several years past, the weight of rail purchased has been 110 lb. and the road is now beginning to use 130-lb. rail. Rail purchases for the system



Delegates and Visitors Who Attended the Santa Fe Supply Meeting at San Bernardino, Cal.

amounted to 148,054 gross tons in 1929, costing \$6,531,995. During the same year, the road sold 22,182 tons of old rail.

During 1929, the Santa Fe spent \$6,615,308 for crossties and used 4,002,548 ties, valued at \$5,730,588. On the Santa Fe it has been the system practice since 1922 to use hardwood ties on curves and to buy and distribute all ties in accordance with a system tie map. Early in the fall of each year the roadmasters inspect their tracks and estimate the number of ties needed for renewals during the coming year. These estimates show the number and kinds of ties needed for each kind of track and, after being approved by the general managers, they are forwarded to the general storekeeper, who prepares a system statement. Subsequently the store department receives a similar report covering the ties for additions and betterments work and also an estimate from the chief engineer to cover proposed construction work. These estimates are condensed into one statement for the use of the purchasing department in determining the needs for each class of ties in each section of the system for the coming year.

For the purpose of distributing crossties, all orders on tie-treating plants or tie-storage yards are placed by the general store. These orders are based on the cross-tie requisitions received from each roadmaster, as approved by the superintendent and general manager, and are checked against the original estimates as to quantities and also against a system tie map as to the class of ties to be used in each territory. All crossties at treating plants and storage yards are carried in the stores balance and are not charged out until actually inserted, as shown by monthly tie reports received from the track forces.

#### Install Cranes on Supply Trains

It was brought out in the meeting that the Santa Fe has improved its supply-train service by installing a combination crane and magnet for handling heavy track materials and loading miscellaneous scrap. In a paper by A. J. Baker, division storekeeper, Dodge City, Kan., this machine is reported to provide an economical method of handling unusually large loads of materials and scrap and to expedite performance to such an extent that there is practically no delay in this part of the supply service. It also provides a means of returning to repair plants, at regular intervals, all worn frogs, switches and lesser items of track material. This results in a reduction of such stocks and the purchase of new material.

Supply trains, according to Mr. Baker, should be operated on a regular and frequent schedule for the best results. On the Santa Fe, the division forces accompany

the cars and have found that they provide a means of transportation to each station and tool house, permitting a general inspection of facilities at frequent intervals. This results in a constant policing of the property and affords a personal contact with the line forces. The moral effect of the supply-train operations on the division is large. A 30-day operation of the supply equipment was recommended. Passenger and local freight shipments with 30-day supply car service have shown a decrease while, on territories served only at 60-day intervals, practically as many shipments are made of all classes of material during the intervening month as would have been made if the cars had run on a 30-day schedule. The expense of packing freight and baggage shipments, loss and damage, delay to trains and the inconvenience to outlying gangs and the over-stocks of unapplied items have all been reduced by 30-day supply car movements.

#### Inventories

In a paper on accounting by W. E. Brady, system stores accountant, the annual system inventory of stock on hand, during the past several years, was reported as follows: 1922, \$26,537,000; 1923, \$23,755,000; 1924, \$21,437,000; 1925, \$19,067,000; 1926, \$15,742,000; 1927, \$18,919,000; 1928, \$16,571,000; 1929, \$17,668,000. The inventory for 1929 was compared with the book balance of supplies on hand of \$18,175,000.

During 1929, stores stock on hand at the close of the year amounted to \$12,808,000 and the issues for the 12 months amounted to an average of \$3,126,226, per month representing an average turnover of stock of 24.41 per cent per month and 4.1 months' supply on hand, which is a better showing in each case than was obtained in the years 1927 and 1928.

During 1928, according to A. T. Phillips, general foreman at Topeka, Kan., the Santa Fe handled 2,304,348 carloads of material, of which 1,523,953 were revenue carloads, averaging 29.86 tons per car, 269,445 were l.c.l. shipments, averaging 5 tons each, and 507,950 carloads were non-revenue tonnage loaded with an average of 25.12 tons per car. It was estimated that approximately 10 per cent of the non-revenue tonnage involved material handled by the stores, four of the larger stores alone having handled 24,513 carloads in 1928, containing 715,766 tons, or approximately 25.12 tons per car. Of the 50,798 cars handled by storekeepers alone in 1928, 4,552, or 11 per cent, were loaded with lumber, poles, car doors, etc. Half of the tonnage was in foreign cars and the average delay per car was 5.8 days. The Santa Fe is giving special consideration to the reduction in non-revenue tonnage and the increase in the loading of company material per car.



W. J. Collins, General Purchasing Agent, is the Fourth Man from the Left in the Front Row, and H. E. Ray, General Storekeeper, is the Third Man





*Looking West Over the New Lackawanna Warehouse Layout*

## D. L. & W. Builds Large Terminal Warehouse

*Provides 1,240,000 sq. ft. of floor space for general storage, light manufacturing and l. c. l. freight handling*

ON May 1, one of the largest and most up-to-date railway terminal warehouses in the country will be formally opened at Jersey City, N. J., immediately adjacent to the highly developed freight terminal of the Delaware, Lackawanna & Western at Hoboken, N. J. This new warehouse has many features of special interest, among which are its size and type of construction, its unusually advantageous location, and the fact that it houses a complete l. c. l. freight house as well as warehouse facilities.

The new warehouse, which lies in a general east and west direction, is 848 ft. long by 163 ft. wide, and has eight floors and a basement, with a total floor area of approximately 1,240,000 sq. ft. Supplementing this large storage area, the warehouse is served on both sides by viaducts at its second floor level, which together carry eight tracks having a total capacity for 144 cars. One of these viaducts carries three tracks for direct service to the storage facilities of the building, while the other carries five tracks, a transfer platform and a wide driveway, all of which will be used as l. c. l. freight facilities. The space under the wider viaduct is completely enclosed and will be used for driveway and storage purposes.

To facilitate and speed up trucking to and from the warehouse and freight house facilities, loading space is provided on the street level for about 190 trucks at a time, all of this space being under cover. This is in addition to a large amount of trucking space on the

driveway of the north viaduct. To eliminate delays in handling shipments within the warehouse there are numerous platform scales; 24 freight elevators serve all floors along both sides of the building. In addition all trucking will be done with electric lift trucks and live skids, to be supplemented later with electric tractors and trailers. Although of fireproof construction throughout, the entire building is equipped with an automatic dry-pipe sprinkler system, thus making it possible for shippers and users of the building to secure minimum insurance rates.

### **Building Is of Reinforced Concrete**

The building is of reinforced concrete construction of the flat-slab type. There are seven longitudinal rows of columns on each floor, spaced 25 ft. center to center, and the columns of each row are likewise spaced 25 ft. center to center, with the exception of those at transverse expansion joints at the third points of the building, which are spaced 17 ft. apart.

To carry the imposed load, all of the first and second floor columns, with the exception of those around the exterior of the building and at the expansion joints, have structural steel cores. These cores, which consist of 14-in. H-beams, are continuous members the full height of the first and second floors, with heavy steel billets at their tops and bottoms, and are reinforced in section, where necessary, by the addition of flange plates.



With the exception of the first, or street level floor, and the basement and eighth floor, the clear height between floors of the building is 10 ft. 11 in. The basement has a ceiling height of 9 ft. 11½ in., the eighth floor, 13 ft., and the first floor, 21 ft. 8½ in. The unusual height provided on the latter floor was made necessary in order that the second floor might be at the elevation of the floors of cars operating on the viaducts serving both sides of the building. The car-floor height, in turn, was established by the height of viaduct necessary for a crossing of Grove street, directly in front of the warehouse, along its east end.

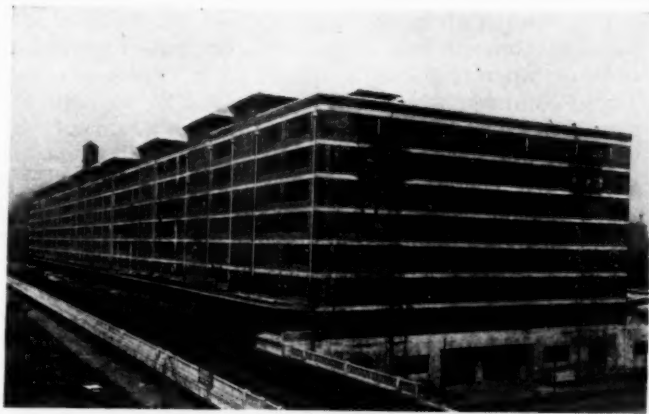
#### Floors are Designed for Heavy Service

All of the floors are designed for heavy loading. The basement floor is 13 in. thick, reinforced for hydrostatic pressure (upward) as well as a live load of 350 lb. per sq. ft.; the first and second floors are 12½ in. thick designed for a live load of 350 lb. per sq. ft.; the third and fourth floors are 12 in. thick, designed for a live load of 300 lb. per sq. ft.; and the floors above the fourth are 11½ in. thick, designed for a live load of 250 lb. per sq. ft. The roof is 7½ in. in thickness and is surfaced with Barrett built-up roofing with a slag coating.

All of the floors and platforms within the building, with the exception of the basement floor and a main trucking driveway on the first floor, were given a one-inch wearing surface of Kalman flooring, a specially prepared, laid and treated concrete to give it hard, wear-resisting qualities. The basement floor was finished with a hydrolytic waterproofing and wearing surface, while the driveway on the first floor was paved with Kreolite wood blocks. All of the floors are suitably pitched for drainage, the upper floors draining to scuppers on both sides of the building.

All floors are cantilevered 6 ft. 2 in. beyond the center line of the outside rows of columns along the sides and the ends of the building, and 8 ft. 6 in. beyond the rows of columns on each side of the two expansion joints, which separate the building into three separate units. At these joints there is no physical connection between the sections of the building other than metal slide plates used on the floor surfaces to span the joint gaps.

The exterior walls of the building are made up of a veneer of red face brick, backed with one-man con-



The New Warehouse Has About 1,240,000 Sq. Ft. of Floor Space

crete tiles. These walls are 12½ in. thick, and their entire weight between floors is carried by the successive floors.

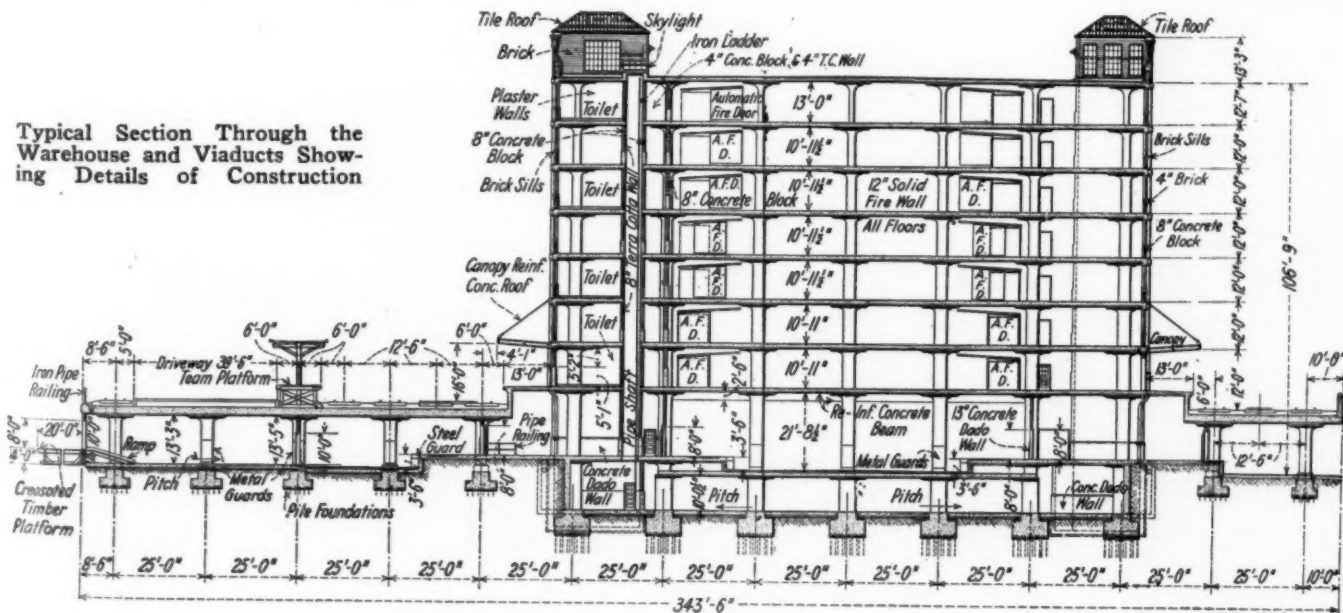
The tiles used for backing in the exterior walls are of the hollow type, 12 in. long, 8 in. wide and 3¾ in. deep. In addition to their use in the exterior walls, these tiles were also used in practically all interior partitions within the building, such as those inclosing stair wells, office areas, etc., with the principal exception that there are five transverse 12 in. concrete fire walls, dividing the building into six separate units.

All doors and window sash throughout the building are of steel construction. Altogether, there are approximately 60,630 sq. ft. of Truscon metal sash in the exterior walls above the first floor. Each separate area of sash in the wall panels between columns is equipped with a ventilating section of the projecting type, these various sections being hand-operated from the floor levels within the building.

#### The Track Viaducts

Two important auxiliaries to the building proper are the viaducts which extend along its full length on its south and north sides. These viaducts are joined to the building by curb walls which extend up to 13-ft. platforms along the sides of the building at the level of the second floor. These platforms are covered throughout the length of the building by reinforced concrete canopies to protect loading and unloading operations.

Typical Section Through the Warehouse and Viaducts Showing Details of Construction



The viaduct along the south side of the building is of flat-slab construction, supported on two longitudinal rows of concrete columns, spaced 25 ft. center to center. These columns, which are also spaced 25 ft. center to center in each row, are 3 ft. in diameter. The south viaduct, which has a concrete balustrade along its outside edge, is 54 ft. wide from the face of the building to the outside of the balustrade, and carries three tracks.

The viaduct along the north side of the building, which is similar in construction to the one along the south side, is 127 ft. 6 in. wide, from the face of the building to an iron pipe railing along its outside edge. This viaduct carries five tracks, a 12-ft. team platform and a 39½ ft. roadway. Four of the tracks on the viaduct lie parallel with each other on 12½-ft. centers, adjacent to the building platform, while the team platform, which is covered with a canopy, is located adjacent to the most northerly of these tracks. This platform, which is covered with a canopy, is located immediately adjacent to the most northerly of these tracks. This platform, which extends the full length of the building, is constructed entirely of creosoted timber. The driveway on the north viaduct lies immediately along the north side of the team platform, and along the north side of the driveway is the fifth track on the viaduct. Both viaduct decks are designed to carry E-60 loading, and are surfaced with membrane waterproofing, protected against the cutting action of the ballast by Hastings asphalt paving blocks.

All of the facilities on the north viaduct are a part of the freight house layout at the warehouse, and, as is evident, provide not alone for handling l. c. l. business into and out of the building, but also for handling car-load business directly to and from delivery trucks on the driveway.

#### Saw-Tooth Platforms on First Floor

The first and second floors of the warehouse are designed primarily as receiving and shipping floors and are divided with the intent that the south side of these floors shall be used as a warehouse facility, while the north side shall be used as an l. c. l. freight house. For all practical purposes, the first floor can be considered as extending entirely across the warehouse layout, from beneath the outer edge of the south viaduct to beyond the north edge of the north viaduct.

Directly through the center of the warehouse proper, occupying two of the 25-ft. bays between longitudinal

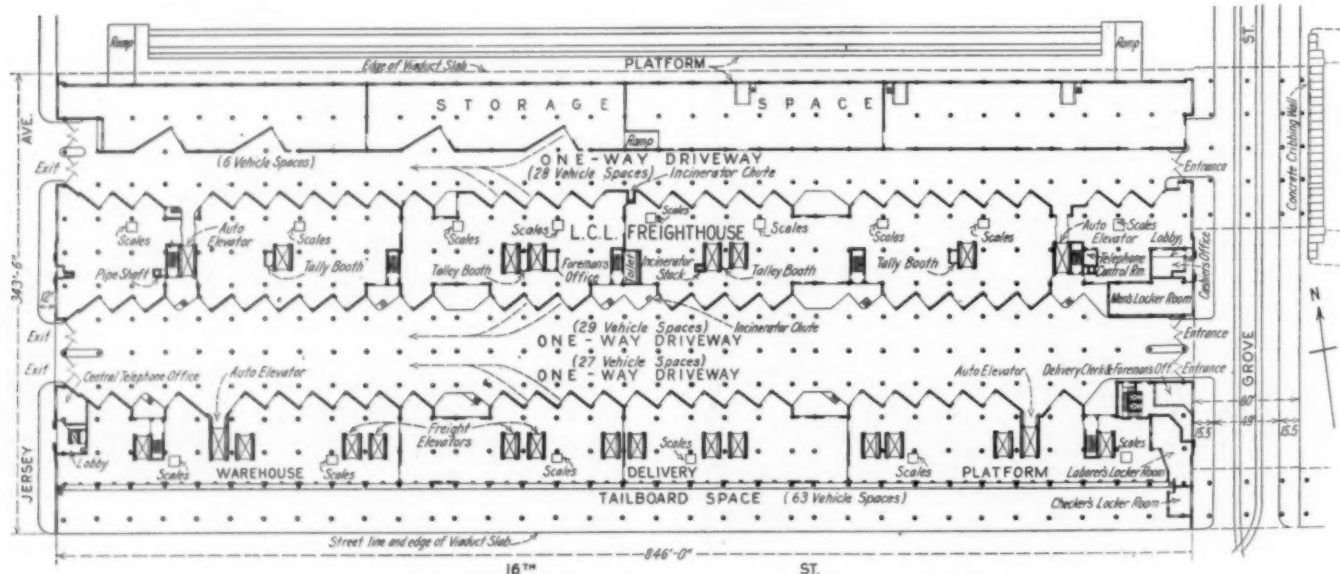
rows of columns, is a two-lane driveway, along both sides of which are saw-tooth platforms, 3 ft. 6 in. high, which are entirely inclosed by concrete tile walls, except for 10-ft. by 6-ft. door openings at the tailboard of each saw tooth. The platform along the south side of the driveway has a maximum width of about 72 ft., and extends to a point 22 ft. beyond the building line, under the south-side viaduct, forming a platform under the viaduct for receiving and delivering merchandise. Beyond the platform is an additional width of about 32 ft. under the viaduct, extending the full length of the building, which will be used by trucks in backing up to the platform to make deliveries or to receive shipments. This entire side of the first floor will be used exclusively for warehouse business.

The platform under the north side of the building has a saw-tooth edge fronting on the driveway through the center of the building, and has a maximum width of about 90 ft. to a saw tooth edge on its opposite side. Owing to its width the north side of this platform extends under the north viaduct to a point about 38 ft. from the north side of the building. This platform, which will be used entirely as an l. c. l. freight house facility, provides tailboard space on its two sides for 57 vehicles at a time.

Beyond the driveway along the north side of the l. c. l. freight platform, which has a clear width of 25 ft. between longitudinal rows of columns, in addition to the clear recesses provided for backing in trucks, the remaining space under the north viaduct, which is about 60 ft. wide, is closed in on both sides with concrete tile walls, with suitable freight door openings, and will be used entirely for general storage space. The west half of this long inclosure is at car floor height, while the east half is at the driveway level.

The entire length of the inclosure is served on its outer side by a creosoted timber platform, 20 ft. wide, which, in turn, is served by two tracks on the ground level. This timber platform will be used for handling many classes of freight to and from the storage space under the north side of the viaduct, but is intended primarily as an automobile unloading platform. In addition to the side unloading facilities provided, both ends of the platform are equipped with transverse sections and ramps to the street level, for the end unloading of automobiles.

Special features on the first floor level include the saw-tooth arrangement on the platforms, provided so



Plan of the Street Level Floor, Showing Facilities Provided



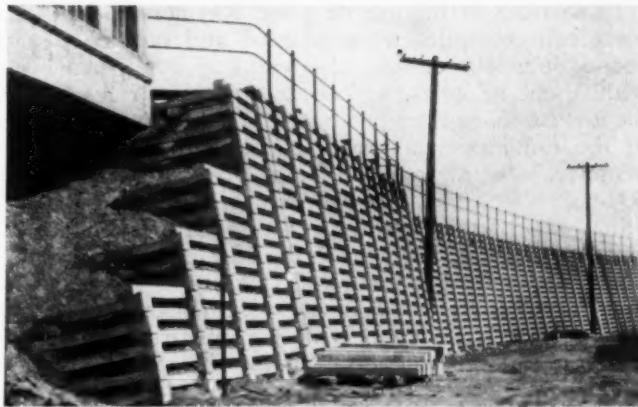
that standing trucks will not extend into the driveways, and the complete equipment of the platforms with scales and elevators. In the saw-tooth arrangement provided, the tailboard of the saw-tooth is 16 ft. wide, and is, in each case equipped with a 10-in. by 12-in. backing log protected with steel angles and plates. Peeley bi-folding steel doors, 10 ft. by 6 ft. are provided at all of the saw-tooth stalls. There are a total of 196 of these doors on the platforms and at other points throughout the building, all hand-operated by chain hoists.

A total of 24 freight elevators serve the two main platforms of the building, as well as the basement and all of the upper floors, 16 of them being on the south side of the building and 8 on the north side. All of the elevators are the Otis electrically-operated type of six tons capacity, equipped with micro-leveling devices. All of the elevator platforms are 9 ft. by 17 ft., except four, which are 9 ft. by 24 ft. and designed specially for handling automobiles. Two of these larger elevators are located on each side of the building, one being located near each end of each side. In addition to stops at all of the upper floors of the building and the platform level of the first floor, provided for all of the elevators, the automobile elevators also stop at the driveway level of the first floor.

The gaps in the platforms, made necessary by the driveway level approaches to the larger elevators, are spanned, when not in use, by light structural steel bascule-type lift bridges, which are operated by chain hoists. Six platform scales serve the warehouse platform on the first floor, while eight such scales serve the freight house platform on the same floor. These scales are in addition to two which serve l. c. l. freight house facilities on the second floor. All of the scales are of the platform type and have a capacity of 3,000 lb.

#### Upper Floors Are Largely for Storage

The second floor of the warehouse layout, like the first floor, might well be considered to extend from the outside edges of the viaducts on each side of the building. In the division of space on this floor, the south viaduct as well as the platform along the south side of the building and five of the main 25-ft. bays throughout the length of the building, will be used entirely as warehouse facilities. On the other hand, the most northerly bay of the building, together with the entire viaduct layout on the north side of the building, are intended as part of the l. c. l. freight house facilities. Separation of the warehouse and freight house facilities



About 33,000 Precast Concrete Cribbing Units Were Used in the Track Approach to the Building

on this floor is made complete by a continuous wall of concrete tile, with only a few freight door openings. The only special facilities provided on this floor are toilet and wash rooms, and offices for the terminal operating company and for the freight agent and his clerical force.

All of the floors above the second are continuous throughout, without wall obstructions other than the fire walls which divide the floors into six main sections, and certain temporary walls on certain of the floors inclosing areas to be occupied under long term lease. It is planned to keep these floors free from partition walls as far as possible, using only wire mesh partitioning where partitions are desired.

The basement of the building is laid out much the same as the upper floors and is intended primarily for storage purposes, except that a large part of the outer area of this floor is divided into rooms for housing such equipment as pumps, charging panels, transformers, etc. Space is also provided in the basement for an incinerator.

There is little of special interest in connection with the heating, lighting and ventilation of the building, except, possibly, a blower system for aiding the escape of motor vehicle gases from the main driveway through the center of the building. This system consists of four large capacity blowers, housed in two groups of two blowers each on the second floor, at the third points in the length of the building. These blowers receive fresh air from air wells extending to the roof of the building, and discharge the air into the two lanes of the driveway beneath.

#### Pile Foundations Used

As might be expected, there were many interesting features in connection with the design and construction of the warehouse. In December, 1928, when the work on this project was started, the site of the building was covered with houses, stores and a number of miscellaneous industries, all of which had to be removed. Rock for suitable foundations was found at levels ranging from 30 to 60 ft. below the surface of the ground, and it was originally planned that all of the building footings would be supported on caissons to be constructed by the open dredging method. As a matter of fact, 18 caissons were started, 9 of which were sunk to rock before it was decided to change to pile foundations. This change was brought about by the extreme difficulty experienced in driving steel sheet piling for the caissons, and also by the fact that an extremely hard stratum of compact gravel was found about 30 ft. below the ground level.



View Showing Typical Layout and Construction of Upper Floors



In shifting to the use of piles, Raymond poured-in-place concrete piles were adopted and typical column foundations throughout the building were made up with about 47 piles, spaced  $2\frac{1}{2}$  ft. center to center, the allowable load per pile being about 30 tons. Certain of the footings required in excess of 47 piles, as, for instance, those carrying the additional weight of a 60,000-gal. water tank on the roof of the building, and others carrying the additional weight of a 5-ft. chimney from the incinerator plant in the basement. The maximum footing load is about 2,750,000 lb.

Approximately 147,500 cu. yd. of excavation was necessary in connection with the construction of the building and the viaducts. Inasmuch as it was necessary to excavate to a depth of 10 ft. below mean tide, it was expected that considerable trouble would be experienced with water. This difficulty did not materialize to any extent and practically all of the excavation work was done with steam shovels and cranes, loading directly into motor trucks.

#### Method of Construction

In the program of construction followed, the north viaduct was completed first in order to provide a working platform for the mixing of concrete and the receiving and sorting of steel to be used in the construction of the warehouse. While portable concrete mixers were used in connection with the foundation and north viaduct work, practically all of the concrete in the building proper was mixed at three main concrete plants set up on the north viaduct and equipped with elevators for hoisting the concrete to the various floor levels. No chuting of the concrete was allowed in any part of the building and, therefore, all of the concrete was handled in concrete carts. Platform hoists were used to elevate all structural materials, such as bricks, cement blocks, etc., to the upper floors, and a caterpillar crane, operating on the north viaduct, handled a large part of the concrete reinforcing steel. Electric tractors were used to a large extent in hauling materials on the various floors during construction.

The building, together with the two viaducts, required the placing of 110,000 cu. yd. of concrete and 9,119 tons of reinforcing steel. The maximum amount of concrete handled in one day was about 1,420 cu. yd.

Steel forms were used throughout in the construction of the warehouse and viaducts, and gave most satisfactory results. Column forms were pulled in from 3 to 7 days, and floor forms in from 14 to 21 days, depending, in each case, primarily upon the weather.

#### Much Auxiliary Work Was Necessary

In addition to the large amount of work involved in the construction of the warehouse and viaducts, already described, much other work was necessary in connection with the warehouse project. The more important items of this work included the rearrangement and construction of approximately six miles of tracks, the rebuilding of a river pier, and the construction of a long approach to the viaducts serving the warehouse. This latter work, in itself, required the handling of about 30,000 cu. yd. of filling material, the construction of several hundred feet of three-track, reinforced concrete viaduct, and five bridges. The bridges include two single-track bridges, two three-track bridges and one carrying five tracks.

A feature of special interest in connection with the approach to the viaducts was the extensive use made of Massey precast concrete cribbing. In this approach the embankment was built up between two crib walls, one of which is 1,506 ft. long and ranges from 6 ft. 10 in. to 18 ft. 10 in. in height, while the other is 1,348 ft. long,

and varies from 9 ft. 8 in. to 19 ft. 9 in. in height. Altogether, about 33,000 cribbing units were used in connection with the viaduct approach.

#### Facilities Offer Advantages to Shippers

There are many features in connection with the new warehouse which should make it particularly advantageous to shippers. One of the most important of these is its location in Jersey City, immediately adjacent to the eastbound receiving yard of the Lackawanna and in close proximity to main arteries of highway traffic leading to all parts of the metropolitan district, notably the Holland vehicular tunnel to Manhattan. It is also only five minutes trucking distance from the Hoboken-Manhattan ferries to Twenty-Third street and downtown New York.

Certain features in connection with the layout and operation of the new terminal will also be of material advantage to shippers. One of the most important of these is the location of the l. c. l. freight house directly within the warehouse building, which will make it possible for shippers to use the warehouse for storage space and to send out l. c. l. shipments by rail without a cartage charge to a freight house. In the warehouse itself, space will be leased not alone for general storage purposes, but also for light manufacturing and assembly work, and one complete section on each floor above the fourth will be set aside for storing bonded merchandise. Storage-in-transit privileges will also be allowed at the terminal, and a distribution and delivery service is planned which will make available to shippers trucking service to all sections of the metropolitan district, within a radius of about 40 miles.

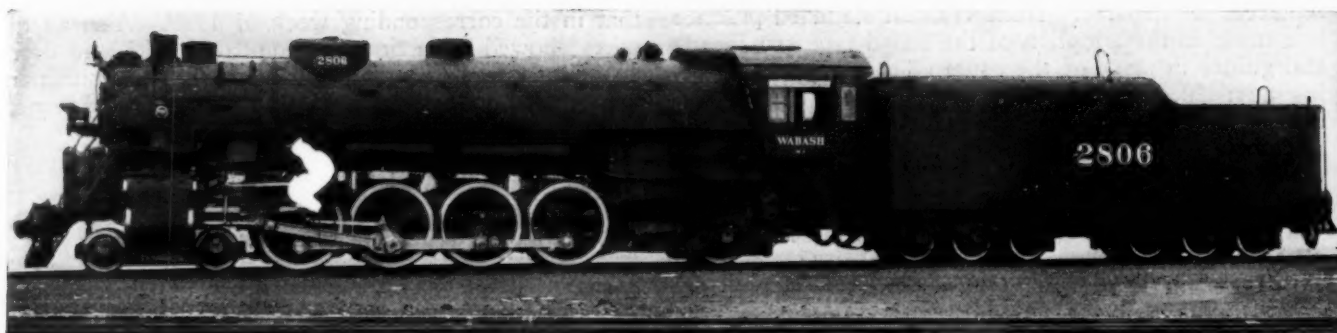
The entire warehouse improvement project of the Lackawanna was planned and carried out under the direction of Geo. J. Ray, chief engineer of the Lackawanna, assisted by D. T. Mack, architect of the Lackawanna, who was responsible for all architectural details of the building, and J. L. Vogel, bridge engineer, and M. Hirschthal, concrete engineer of the Lackawanna, who were directly responsible for the structural design of the warehouse and the auxiliary structures in connection with the project.

The actual construction work was done by the Turner Construction Company, New York, under the general direction of M. H. Doughty, division engineer of the Lackawanna, who was represented on the work by W. L. Lozier, assistant engineer. G. E. Larson acted as superintendent of construction for the Turner Construction Company. The new warehouse, which will be operated by the Lackawanna Terminal Warehouses, Inc., will be under the direct charge of W. J. Northup, manager.

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The Atchison, Topeka & Santa Fe Station  
at Oklahoma City, Okla.



One of the 4-8-2 Type Locomotives Built for the Wabash by the Baldwin Locomotive Works

# Mountain Type Locomotives for the Wabash

*To replace Mikado type in fast freight service between  
Decatur, Ill., and Montpelier, Ohio—272 miles*

THE Baldwin Locomotive Works recently delivered to the Wabash, 25 4-8-2 type locomotives for use in fast freight service between Decatur, Ill., and Montpelier, Ohio, a distance of 272 miles, with eastbound and westbound ruling grades of .6 and .9 per cent, respectively. These locomotives, with 27-in. by 32-in. cylinders, 70-in. driving wheels, operating at a working pressure of 235 lb. and developing a tractive force of 66,568 lb., will replace the Wabash Class K-4 2-8-2 type locomotives with the same size cylinders, 64-in. driving wheels, a working pressure of 210 lb. and a tractive force of 65,063 lb. Two-thirds of the replaced Mikado locomotives are equipped with boosters which, when in use, increase the tractive force to 76,899 lb. Although the initial starting force of the new locomotives is less than that of the replaced locomotives, they have been designed to develop and sustain a high tractive force at high speeds for the purpose of handling the increasing number of fast-freight trains which represent the bulk of the business on the divisions to which the locomotives have been assigned.

The new locomotives in working order, with the tender loaded, weigh 697,400 lb. The engine alone weighs 406,400 lb., of which 270,400 lb. is on the driving wheels. The factor of adhesion is 4.07.

An important feature in connection with the high-speed freight service in which these engines have been placed is the method used in counterbalancing the revolving parts to reduce the hammer blow and side thrust on the rails at high speeds. The design makes possible a complete balancing of the rotating weight on the main driving wheels, an equal distribution among the four pairs of drivers of 50 per cent of the reciprocating weights and a cross-counterbalancing for out-of-plane rotating parts on the main drivers.

The boilers are of the extended wagon-top type, with an inside diameter of 82½ in. at the front course and a 92 in. diameter at the combustion chamber which is 45 in. long. They are amply designed in regard to heating surface, the firebox having 415 sq. ft. and the tubes and flues having 4,179 sq. ft. The capacity of

the boilers is rated as 100 per cent of the cylinder power, this being based on 20.8 lb. of water per horsepower-hour, and does not take into account the in-

## Principal Dimensions and Weights of the Wabash 4-8-2 Mountain Type Locomotives

Railroad	Wabash
Builder	Baldwin Locomotive Works
Service	Freight
Rated maximum tractive force	66,570 lb.
Weight on drivers ÷ maximum tractive force	4.07
Cylinders, diameter and stroke	27 in. by 32 in.
Valve gear, type	Walschaert
Weights in working order:	
On drivers	270,400 lb.
On front truck	72,100 lb.
On trailing truck	63,900 lb.
Total engine	406,400 lb.
Total engine and tender	697,400 lb.
Wheel bases:	
Driving	18 ft. 3 in.
Rigid	12 ft. 2 in.
Total engine	41 ft. 11 in.
Total engine and tender	83 ft. 10 in.
Wheels, diameter outside tires:	
Driving	70 in.
Front truck	33 in.
Trailing truck	44 in.
Boiler:	
Steam pressure	235 lb.
Fuel, kind	Soft coal
Diameter, first ring, inside	84½ in.
Firebox, length and width	126 in. by 96¼ in.
Tubes, number and diameter	67—2½ in.
Flues, number and diameter	186—3½ in.
Length over tube sheets	20 ft.
Grate area	84.2 sq. ft.
Heating surfaces:	
Firebox and combustion chamber	333 sq. ft.
Arch tubes	26 sq. ft.
Thermic syphons	82 sq. ft.
Tubes and flues	4,179 sq. ft.
Total evaporative	4,620 sq. ft.
Superheating	2,004 sq. ft.
Combined evaporative and superheat	6,624 sq. ft.
Tender:	
Water capacity	15,000 gal.
Fuel capacity	18 tons

created cylinder efficiency due to the Type E superheater used and the increased boiler efficiency due to the feedwater heater.

The Type E superheaters used for the first time on the Wabash have a total superheating surface of 2,004 sq. ft. The percentage ratio of superheating surface to evaporative surface is 43.38 as compared with 24.51 for the locomotives which the new Mountain type engines



replaced. A departure from Wabash standard practice was made in the adoption of the Laird type crossheads and guides in place of the usual alligator type, this being advisable in connection with the use of outside-bearing engine trucks. The truck is the American Locomotive Company's outside bearing engine truck, with geared roller resistance, 6-in. by 11-in. bearings and 33-in. diameter heat-treated rolled-steel wheels.

The trailer truck is designed to permit future application of a booster. The front drivers are equipped with the American Locomotive Company's lateral motion driving box, this reducing the rigid wheel base to 12 ft. 2 in. and making possible the operation of the engine on 16-deg. curves.

Another feature in the design of the locomotives is the use of the vestibule type of steel cab which furnishes full protection for the engine crew from unfavorable weather without relying on canvas curtains.

The engine is equipped with Hulson Tuyere type grates, the standard BK stoker, Madden type ashpan, Bradford front end throttle and Nicholson thermic syphons. Worthington type 5S feedwater heaters are used on twenty engines and the Sellers exhaust feedwater-heater injectors on five.

The tender, equipped with a Commonwealth cast-steel, water-bottom frame and side sheets of copper-bearing steel, carries 15,000 gal. of water and 18 tons of coal. Five of these engines have tender trucks fitted with the American Steel Foundries' roller-bearing unit, three with Timken and 2 with Shafer roller-bearing sets.

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading in the week ended March 22 amounted to 875,542 cars, a decrease of 86,858 cars as compared with the corresponding week of last year and of 74,652 cars as compared with 1928. This was the lowest loading for the corresponding week in any year since 1922. All classes of commodities shared in the reduction as compared with last year, but the largest decrease was in the loading of miscellaneous freight, which was 41,696 cars less than

that in the corresponding week of 1929. Also all districts showed reductions as compared with the corresponding weeks of both 1929 and 1928. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

### Revenue Freight Car Loading

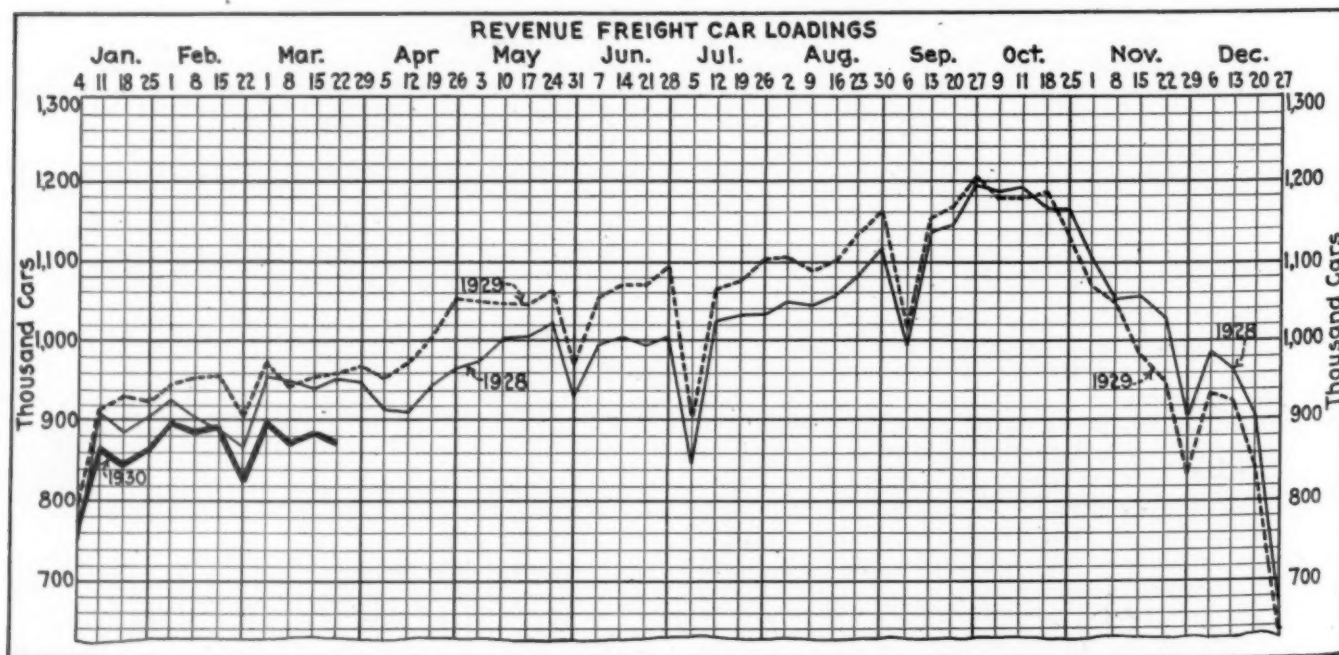
Districts	1930	1929	1928
Week Ended Saturday, March 22, 1930			
Eastern .....	201,203	228,713	215,216
Allegheny .....	179,975	200,396	188,184
Pocahontas .....	45,477	49,661	51,005
Southern .....	141,916	150,360	163,564
Northwestern .....	106,892	115,351	119,754
Central Western .....	126,654	137,617	135,592
Southwestern .....	73,425	80,302	76,879
Total Western Districts .....	306,971	333,270	332,225
Total All Roads .....	875,542	962,400	950,194
Commodities			
Grain and Grain Products .....	37,657	42,111	46,617
Live Stock .....	21,241	26,046	28,008
Coal .....	126,869	136,490	157,123
Coke .....	9,753	12,216	10,330
Forest Products .....	58,398	68,396	69,142
Ore .....	10,043	11,886	8,548
Merchandise L.C.L. ....	251,437	263,415	260,564
Miscellaneous .....	360,144	401,840	369,862
March 22 .....	875,542	962,400	950,194
March 15 .....	881,187	958,601	942,572
March 8 .....	873,548	947,539	951,556
March 1 .....	899,189	978,201	959,494
February 22 .....	828,890	905,503	869,417
Cumulative total, 12 weeks.....	10,384,852	11,184,332	10,843,453

The freight car surplus also continues to increase and in the week ended March 22 averaged 478,592 cars, a higher figure than has been reached since 1921. As compared with the week before this was an increase of 11,410 cars. The total included 204,674 box cars, 218,226 coal cars, 28,527 stock and 14,344 refrigerator cars.

### Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended March 22 totaled 58,958 cars, a decrease from the previous week of 1,347 cars and a decrease of 7,440 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
March 22, 1930 .....	58,958	36,446
March 15, 1930 .....	60,305	38,282
March 8, 1930 .....	61,125	37,970
March 23, 1929 .....	66,398	47,591
Cumulative Totals for Canada		
March 22, 1930 .....	681,203	441,916
March 23, 1929 .....	743,856	516,883
March 24, 1928 .....	755,970	475,046





# Operating 1,000-Mile Divisions

*Southern Pacific organization  
makes each superintendent, in  
effect, a general manager*

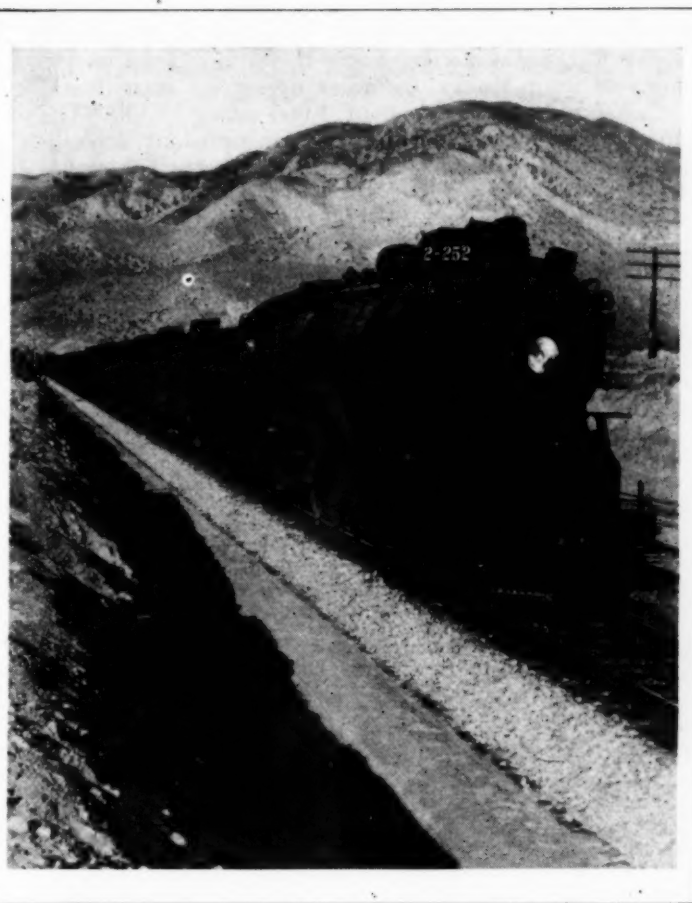
**T**HE supervision of the 8,887 miles of lines of the Southern Pacific Company (Pacific Lines) is entrusted to only 12 superintendents, giving them an average of 740 miles per division. Three of the divisions comprise more than a thousand miles of lines each, including the Salt Lake with 1,262 miles; the Portland with 1,224 miles; and the Rio Grande with 1,125 miles; while the shortest, the Shasta, comprises 407 miles.

The efficient supervision of divisions of this size is made possible by the delegation of unusual powers to the superintendents, who report directly to the general manager and his assistants, there being no general superintendents on the S. P. Each superintendent is provided with a sufficient staff of assistants, and with complete statistical data. He is in charge not only of operation and transportation, but of other departments on his division as well. The division engineer, the master mechanic, the division storekeeper and the chief special officer of each division report directly to the superintendent, and their activities are supervised by him. Under this arrangement, the superintendents on the S. P. are, in effect, the general managers of their divisions.

## Divisional Details

The list of divisions, showing operating mileages, main and second tracks and sidings, is given in Table I. It will be observed that the 13,827 miles of tracks operated include 8,887 miles of main tracks, 832 miles of second main track, and 4,086 miles of sidings. Of the total main track, 4,855 miles is classified as main line, and 4,032 miles as branch line.

In the administration of this large property, the general manager is aided by three assistant general managers, with headquarters at Sacramento, Cal., Los Angeles, and El Paso, Texas. For operating purposes, the railway is divided into three districts, the Northern district, comprising 4,470 miles of lines, of which 2,303 miles is main line and 2,167 miles branches; the Southern



*A Train of Perishables on the Los Angeles Division*

district, comprising 2,098 miles of lines, of which 1,145 is main line and 953 miles branches; and the Eastern district, comprising 2,319 miles of lines, of which 1,407 miles is main line, and 912 miles branches. Thus, the Pacific Lines consist of 4,855 miles of main line and 4,032 miles of branches.

Each superintendent is provided with a sufficient staff of assistant superintendents, trainmasters and assistant trainmasters, while terminal trainmasters are provided at the three large terminal points, Portland, Ore., San Francisco, Cal., and Los Angeles. The distribution of these supervisory officers is shown in Table II.

## A Specific Division

The rapid growth of the territory served has, of course, increased the duties and responsibilities of the superintendents. While each division has had its own

**Table I—Operating Mileages—S. P. Divisions**

Division	Single Main Track	Other Main Track	Sidings	Total
Western .....	450	117	399	966
Sacramento .....	682	153	344	1,179
Salt Lake .....	1,166	297	367	1,830
Shasta .....	407	...	224	631
Portland .....	1,224	3	323	1,550
Stockton .....	491	24	226	741
Coast .....	548	61	457	1,066
San Joaquin .....	814	41	428	1,283
Los Angeles .....	736	37	554	1,327
Tucson .....	674	30	241	945
Rio Grande .....	1,125	43	356	1,524
New Mexico .....	520	...	144	664

particular history of development, a resume of the growth of the Coast division will, in a measure, indicate the development on all the divisions. This division consists of a main line of 371 miles from San Francisco

to Santa Barbara, where connection is made with the Los Angeles division, together with several other main lines and branches, which bring the total mileage to 548 miles of main tracks, 61 miles of second main track, and 457 miles of sidings, or 1,066 miles in all. The superintendent's staff consists of an assistant superintendent, three trainmasters and one assistant trainmaster.

Until two decades ago, the maximum number of trains handled over the main line of this division was 42. The expansion of this traffic is indicated by the fact that, in one 24-hr. period in June, 1929, 34 special passenger trains were handled, in addition to the regular movement of 70 passenger and 40 freight trains. A vast perishable movement has been built up from nothing to 17,000 cars in 1928 and 22,000 cars in 1929. The payroll on the division amounts to over \$800,000 per month, with an average of 6,200 men employed.

The development of this division has been paralleled to a greater or less degree on the other divisions, and a consistent construction program has followed the de-

and gives the following information on a comparative basis:

Road miles in heavy traffic direction  
Train miles in heavy traffic direction  
Excess train miles in light traffic direction  
Locomotive miles in heavy traffic direction  
Excess locomotive miles over train miles  
Gross ton miles  
Average gross tons per locomotive  
Engine efficiency

This analysis is accompanied by explanatory notes of any discrepancies, together with brief comments regarding the situation on each district. Each month, these data are gathered for each division and a general summary is sent to each superintendent, showing comparisons with the previous year, as well as with the other divisions of the Pacific Lines. This enables each superintendent to determine how his showing compares with that of the other divisions. Since the report is subdivided to show each freight train district of each division, the assistant superintendents, trainmasters and assistant trainmasters are also given the opportunity to make comparisons between the districts under their jurisdiction and the districts of other supervisory officers.

Complete analyses of such factors as overtime and car handling are also supplied, together with monthly summaries. The other reports are supplemented by special reports showing perishable movement, etc., to provide as complete a statistical picture of the division as possible.

Each superintendent is also supplied with an analysis of the performance at each of the terminals on his division, which includes, in comparative form, such data as:

Engine days of eight hours  
Cars handled:  
Freight  
Passenger  
Total  
Cars handled per engine day  
Gallons fuel consumed  
Gallons per car handled  
Overtime hours worked

This analysis is also accompanied by a sheet giving detailed explanations.

Thus, the superintendents are given a complete statistical picture of their divisions. Each superintendent is provided with a business car, so that he may more readily supplement and interpret this statistical knowledge by actual observation on the ground. A sufficiently large staff of assistants to look after the routine details enables the superintendent to devote more time to the executive work of his division. The experience of the S. P. has been that this is the most efficient method of providing the necessary supervision.

\* \* \*



The Track Level of the Richmond, Fredericksburg & Potomac's Passenger Station at Fredericksburg, Va.

Table II—Divisional Supervisory Forces

Division	Total Mileage	Asst. Supts.	Trainmasters	Asst. Trainmasters	Term. Trainmasters
Western	966	1	4	..	1
Sacramento	1,179	1	4	1	..
Salt Lake	1,830	2	4	1	..
Shasta	631	1	4	1	..
Portland	1,550	2	5	1	1
Stockton	741	1	2	1	..
Coast	1,066	1	3	1	..
San Joaquin	1,283	1	3	..	..
Los Angeles	1,327	2	4	1	1
Tucson	945	1	3	..	..
Rio Grande	1,524	1	4	..	..
New Mexico	664	0	2	..	..

velopment. Thus, the problems that the divisional officers have been called upon to solve have been constantly changing, and it has been necessary to devise new methods to keep pace with the development and with the construction program.

#### Statistics Aid

One of the ways in which the superintendents have been aided in maintaining a current knowledge of all the essential details of their large divisions is by daily analyses of various phases of operation. These are prepared by their own statisticians and by the district and division auditors. These auditors too were formerly under the jurisdiction of the superintendents, but a few years ago it was deemed advisable to relieve them of this responsibility and the auditors now report directly to the auditor of disbursements. However, the decentralized system of accounting and statistics was maintained and six division auditors now handle seven divisions, as follows:

Location	Divisions
Portland, Ore.	Portland
Dunsmuir, Cal.	Shasta
Ogden, Utah	Salt Lake
Bakersfield, Cal.	San Joaquin
Tucson, Ariz.	Tucson
El Paso, Texas	New Mexico and Rio Grande

There are, in addition, three district auditors, those in Los Angeles and Sacramento handling the local divisions, as well as the district stores and general shops, while the third division auditor, in San Francisco, handles the Coast, Western, East Bay Electric and Steamer divisions, together with the district stores and general shops.

Several daily analyses are prepared by the auditors and statisticians, and the following paragraphs give a resume of the more important ones.

The daily analysis of freight locomotives loadings divides the division into its normal operating districts,



# Maintenance of Steam Railroad Electrification Equipment

*A trained organization and special repair facilities are required for the successful operation of any installation*

By W. F. Coors  
Electrical Engineer

**A**FTER a steam railroad or a portion of its route is electrified maintenance of the new equipment becomes a factor of prime importance. The electric traction system was probably adopted to save money and to make certain improvements in operation and these things can be realized only when the railroad is provided with suitable maintenance facilities and a well organized personnel working with carefully planned systematic methods.

New railroad electrifications are usually different from preceding ones, not only as to details of apparatus but also as to the systems employed for the utilization of the electric energy. This is the natural development of progress in the art. The performance of new equipment cannot be determined exactly without some actual experience. The method of maintenance and the application of the method depends considerably on this experience.

## **Maintenance of Steam and Electrical Equipment Ought to be Segregated**

There are, however, certain principles which can always be applied effectively in the care of electrical apparatus of all kinds and if these are inculcated in the minds of those having charge of the electrification equipment, fundamental difficulties will be avoided and many of the details will be taken care of automatically as they develop. Electric locomotives are coming into more general usage and new purchasers should look into the problem of their future maintenance promptly. Maintenance requirements last as long as the equipment and are of paramount importance long after the initial cost has been taken care of and the guaranteed performance has been realized.

Whatever is done during the early stages of any extensive electrification, various reasons usually are found sooner or later for segregating it from steam-locomotive shops and steam-locomotive practice, part or all of which have to be abandoned with the advent of electric operation. The earlier this movement is started the better will be the organization and the facilities for properly taking care of the electrical equipment. If deferred too long, the electrical machinery will run down faster than ordinary wear and tear should account for, and the expense of restoring it to full efficiency will be comparable to its first cost.

Separate departments for signals, telephone and telegraph, motor buses, etc., are recognized as preferred practice in most cases and it is reasonable to assume that an electrification representing a far greater investment than any of these, will operate best if put on its own footing in all respects.

The substation equipment and the contact system ex-

tend along the route of the electrification. Their inherent features are entirely different from anything connected with steam railroading and they, therefore, primarily demand a special maintenance organization. Electric locomotives differ from steam locomotives for similar service, in that they are essentially substations on wheels. They have traction motors, motor-generators, motor-compressors, transformers or resistors, batteries, relays, remotely controlled switches and almost the whole assortment of equipment found in a substation, though possibly of different size and type. In addition this apparatus is driven over the country exposed more or less to variations of weather and climate. For this reason it is not possible to conform entirely to well established rules of electrical equipment maintenance as in substations. Certainly these differences if not properly allowed for in the original factory design will seriously affect the maintenance of the machines.

At a repair point or terminal where steam and electric locomotives are both handled with workmen's schedules, seniority causes constant interchange of men between the roundhouse and backshop, with the work of the individual shifting from steam to electrical apparatus and back. Progress in gaining maintenance efficiency under these circumstances is inordinately slow.

## **Shop Requirements**

Shops and terminal facilities for the best maintenance of electric locomotives vary in many details from those found best for steam locomotives. Roundhouses and turntables are not necessary or desirable at terminals for locomotives designed for double-end operation. The fire hazard alone rules against the use of turntables because electric locomotives with their many insulated cables would represent a considerable fire loss in a house fire which would no more than burn a little woodwork on a steam engine. In case of fire in a house of square construction with ladder tracks, the electric locomotives can be run out to safety much more quickly than would be possible if they had to be handled one at a time over a turntable. The terminal building for electric locomotives should be of square, fireproof construction, equipped with overhead crane, drop pit and machine shop for making ordinary repairs.

The main shops for overhauling electric locomotives and making heavy repairs should have a sufficient number of tracks, drop pits and traveling cranes. It should also include the following: Armature shop; instrument shop; machine shop; motor repair shop; pantograph or current collector, contactor and resistor or transformer repair shop; boiler, blacksmith, carpenter, pipe and sheet metal shop.

Certain equipment in the departments of the main

shop varies from ordinary railroad shop practice in certain details peculiar to electrification equipment. To provide for these differences the equipment outlined in the following paragraphs is suggested:

*The armature shop* should be equipped with a lathe large enough for banding and turning commutators of the largest armature used. The shop should also be equipped with a bandwire tension machine, electric brazing machine, coil taping and winding machines, bake oven, dipping vats, overhead crane and high-voltage testing transformer.

*The instrument shop* should be equipped with electrical testing apparatus and tools for the repair and calibration of all of the electrical gages and meters used in the substations and on the locomotives. It should also take care of all of the air and steam gages used in connection with the installation.

*The machine shop* should be equipped with the machine tools found in any well designed machine shop. A few modifications will be found necessary to take care of special electrical features of the equipment and can be developed as the need arises.

*The motor repair shop* should be arranged for the convenient assembly, repair and testing of motor-driven air compressors, traction and other motors, motor-generators and transformers, if used.

*Facilities for painting* should follow the best established methods for similar work on coaches and other railroad cars. Properly heated stalls holding whole locomotives should be provided.

*Work on pantographs, contactors and resistors* can be classified as light and extremely accurate machine work. The shop provided for their maintenance should have a complete complement of jigs and gages for uniform assembly of the equipment. A number of light machine tools are required, such as lathes, shapers, drill presses and grinders.

The boiler, blacksmith, carpenter, pipe and sheet metal shops may be consolidated because of the limited amount of such work on electrical locomotives for each of these crafts.

### Shop Schedules

In the ordinary run of maintenance business it is desirable to place each and every part of the electric locomotives on a definitely planned schedule for this work. The I. C. C. rules for locomotives other than steam, provide for certain items, but to insure reliable operation and low maintenance costs, repairs must be performed collectively by systematic methods instead of repairing one part at a time as it may fail.

For example, if the life of traction motor armature bearings is about five years and it requires taking down a larger part of the locomotive to get at a bearing, it would be cheaper to change all of these bearings at stated periods of five years, than to replace them one at a time over a longer period, as each one may require. At the same periods there are other items which should be considered, such as the baking and dipping of armatures, cleaning and varnishing of field coils and overhauling brush rigging, brake rigging and mechanical parts. Under this method the machines as a whole are rejuvenated at intervals of five years and made practically new for another long period of good service.

### Personnel

The personnel of the electrification organization has an important influence in every feature, including that of maintenance. Such an organization necessarily varies due to attendant conditions but may be outlined essentially as follows:

At the head should be an electrical superintendent and his assistant. Both of these should be familiar with the railroad and its operation. They should be good mechanics and electrically trained. Under them should be the locomotive foremen, line foremen, shop foremen and substation foremen.

The locomotive foremen should have charge of the electric locomotives and motormen in road operation, and should be capable of taking care of all maintenance as needed outside of the scheduled routine. The traveling engineers or electrical inspectors should work under these men.

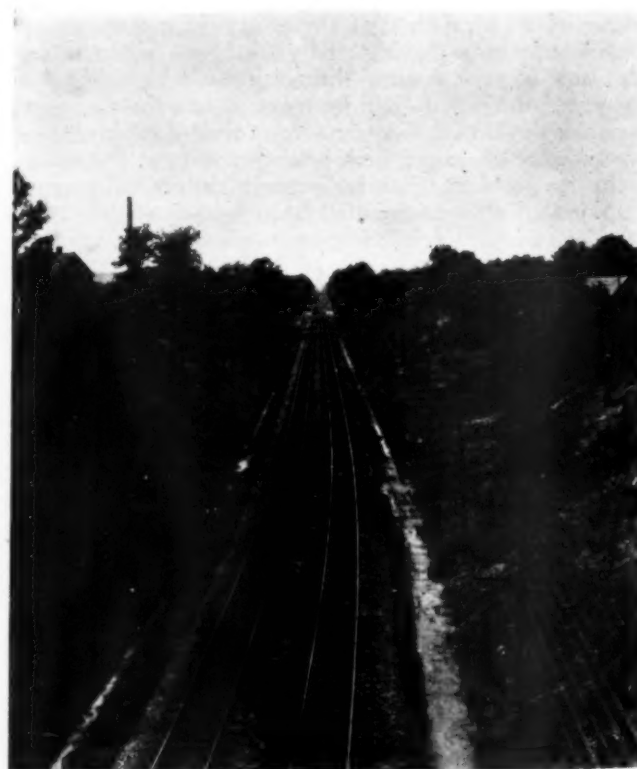
The line and substation foremen should look after all details in their departments.

The shop foremen for the terminals and the main shop must be trained or educated on shop maintenance work in detail for the particular type of locomotives used. Because these men usually have to be recruited from steam railroad shop supervisors or mechanics, they require special training to engage in electric locomotive repairs. These men must not be selected in haste and must be more than mediocre material.

The men in the shops should be classified according to the work which is expected of them, as for example: Electricians, electrical mechanics, armature winders, instrument men, pipe and air brake men, painters, carpenters, boilermakers, blacksmiths, machinists and sheet metal workers. The men in each division should be given opportunity to specialize on particular apparatus as found necessary for better workmanship. Education for the men undertaking maintenance work on new electrification equipment is necessary, and the supervisory force must keep in position to give it.

Having adequate organization and maintenance facilities from the very start of an electrification, assures reliable operation, fewer locomotives necessary to maintain a given amount of service, less total upkeep over an appreciable period of time and only natural deterioration of the electrification equipment as a whole.

\* \* \*



Approaching Washington, D. C., on the Baltimore & Ohio



# Southern's Transportation Ratio Lowered Again

*Falls below maintenance ratio for first time in history—  
Earnings \$11.65 per share of common*

THE Southern Railway in 1929 earned \$11.65 per share on its common stock after all charges, which compares with \$12.53 per share in 1928. After the payment of the regular dividends of 5 per cent on its preferred stock and 8 per cent on the common, a balance of \$4,743,188 was added to surplus, as compared with \$5,881,533 in the preceding year. The

expenses, as shown in this chart, declined to a ratio of a little more than 32 per cent of operating revenues, whereas maintenance expenses, due to flood damage and extensive equipment retirements, rose slightly above 33 per cent—which is to say that transportation expenses, for the first time in the history of the company, totaled less than expenses for maintaining the property. Inci-

Table I—Southern Railway—Earnings and Traffic Volume, 1917-1929

Year	Average miles operated	Operating revenues	Operating expenses	Operating income	Balance after charges	Revenue ton-miles (thousands)	Receipts per ton per mile (cents)
1917	6,983	\$90,716,569	\$60,113,598	\$26,429,962	\$14,037,415	6,516,208	0.897
1918	6,983	126,574,297	91,810,425	30,976,625	5,708,913	7,234,628	1.053
1919	6,984	129,787,812	113,744,813	11,926,598	5,141,567	6,303,441	1.298
1920	6,973	152,817,410	131,236,149	16,890,016	1,716,149	8,229,651	1.219
1921	6,971	128,715,150	105,829,007	18,218,807	2,019,370	5,563,470	1.531
1922	6,971	128,489,847	97,170,133	20,472,778	8,823,797	6,512,961	1.353
1923	6,971	150,467,985	112,414,259	28,128,136	15,136,998	8,123,383	1.298
1924	6,868	142,486,514	102,674,674	30,442,719	17,769,140	7,585,374	1.316
1925	6,873	149,313,891	103,811,951	35,086,021	22,579,172	8,273,604	1.291
1926	6,795	155,467,975	107,866,588	35,528,783	23,596,721	9,023,254	1.250
1927	6,771	147,639,062	103,907,953	32,765,062	21,699,907	8,482,575	1.289
1928	6,760	144,116,452	101,887,718	30,842,554	19,267,132	8,412,608	1.291
1929	6,731	143,183,948	102,701,588	30,030,977	18,128,788	8,350,518	1.293

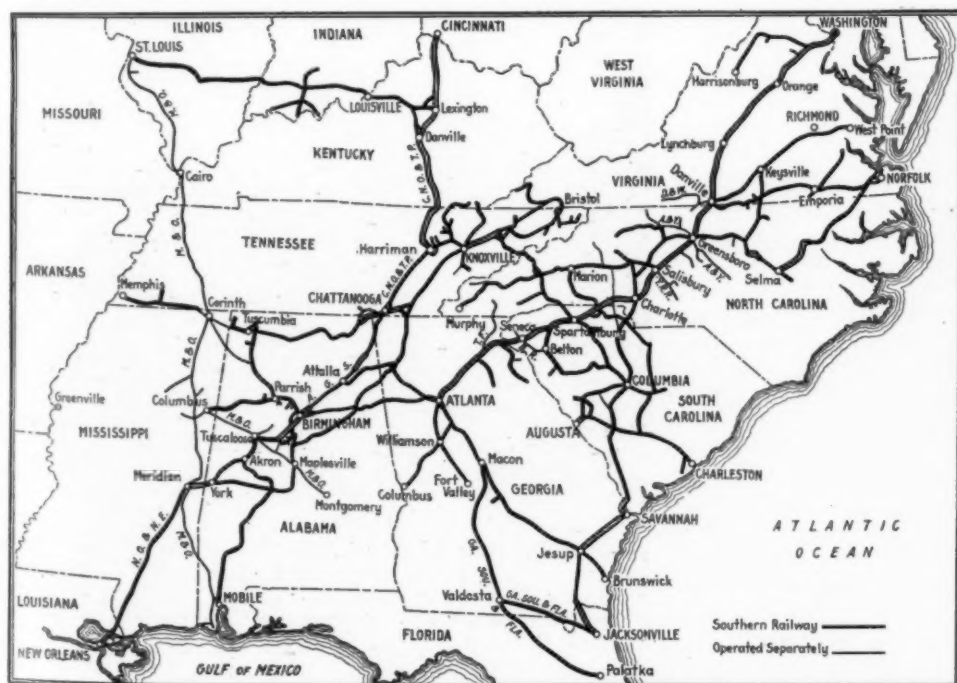
railway in its annual report follows its usual interesting style of setting forth the outstanding phases of its operation in non-technical language and also of selecting certain salient facts for graphic presentation.

Of these latter, probably the most striking is that showing the ratio of transportation and maintenance expenses to operating revenue. Transportation ex-

pendently the graph discloses that the transportation ratio, by its further decline in 1929, continued the downward course which it has maintained since the war, whereas the maintenance ratio continued the upward trend begun in 1926.

Total operating revenues in 1929 were \$143,183,948, a reduction of \$932,504 from the preceding year. Operating expenses totaled \$102,701,588, an increase of \$813,870. Operating net was \$40,482,360, a decrease of \$1,746,347. Gross income, including \$5,785,191 of non-operating income, totaled \$35,816,168, a reduction of \$1,409,287. Gross income bore the ratio of 2.03 to fixed charges.

The balance sheet at the end of the year showed a property investment of \$555,581,133 with holdings in affiliated companies of a book value of \$76,088,530. Inventory of materials and supplies was shown at \$6,819,382, a decrease of \$1,432,151 from the preceding year, and incidentally, the lowest inventory the company has had since 1913. When the decline in the value of the dollar since that



The Southern Railway System

date is considered, the size of the reduction in inventory becomes even more apparent. The highest figure for inventory, incidentally, was in 1920 when it reached \$17,635,896 and the 1929 figure represents a reduction of 61 per cent from that total.

#### Capitalization

Capitalization at the end of the year totaled \$494,290,895, of which 61.6 per cent was funded debt, 12.1 per cent preferred stock and 26.3 per cent common stock. The corporate surplus of the company at the end of the year was equivalent to 92.3 per cent on the common stock, as compared to 86 per cent at the end of 1928. This large corporate surplus built up in the years when no dividends were paid on the stock explains, of course, the comparatively high earnings on the outstanding stock.

The year 1929 continued favorable, from a traffic standpoint, throughout the first nine months and gross revenue for that period exceeded that of the same peri-

company following federal control. Traffic increased rapidly, apparently attaining a permanent new high plane for its normal volume. The railway's efforts were exerted not only to provide efficient handling and adequate facilities for this traffic but also to improve operating performance. From 1923 to 1928, the investment in road was increased 13.6 per cent and the investment in equipment 35.2 per cent. The average increase in tractive power per freight locomotive in that period was 8.3 per cent. Many important construction projects were undertaken and completed, all contributing to greater facility, speed and economy in the handling of great increase in business—among them the construction of the John Sevier terminal near Knoxville, Tenn., extensive bridge strengthening and renewal, new shop facilities and several cut-offs.

#### Traffic on Higher Normal Level

Although since 1926 revenue freight has not shown the rising tendency noted in the post-war years prior to that time, nevertheless the decline recorded subsequent to that year is plainly not fundamental, but is obviously of a temporary nature. Manufacturing operations in the territory served by the Southern continue to grow. Last year \$100,000,000 of capital was expended in new manufacturing plants in its territory. The cotton textile and rayon industries continue to grow in the South and enlarged activities are noted by the railway in tobacco, paper and petroleum industries and in agriculture.

The Interstate Commerce Commission's consolidation plan does not propose any wholesale changes with regards the Southern Railway—but several important additions, among them the Florida East Coast, and one important detraction, the Mobile & Ohio, appear. The attitude of the Southern regarding the proposal was expressed in a letter of Vice-President L. E. Jeffries to the Interstate Commission in which he stated that the Southern "has not made any claims on any one for any more railroads than it now has; being content, as it is now advised, to maintain its rights to those railroads on which it has for a generation devoted its energies."

\* \* \*

od in 1928. Then a recession set in, resulting in a loss in freight revenues of \$978,592 for the entire year, as compared with 1928. Passenger traffic and revenues continued to decline, the latter being for the year 8.4 per cent lower than in 1928. The loss is primarily felt in local business; the operation of through trains continues profitable. A vigorous campaign for the reduction of equipment rents resulted in bringing about a decrease of \$725,825, or 87 per cent, in this important item of expense.

#### Capital Improvements

The net increase in property investment totaled \$6,993,455. In this expenditure were included the purchase of 2,500 freight cars and 12 mail cars; the construction of new freight stations at two points and the enlargement of freight facilities at another; yard improvements at Winston-Salem, N. C., and Huntington, Ind.; locomotive fueling stations at ten points; the elimination of 21 highway grade crossings; and the laying of 147 miles of new 100-lb. rail and 64 miles of 130-lb. rail.

Comparative operating statistics are shown in Table II for 1928 and 1929. The decrease in freight train-hours accompanying an increase in freight train-miles and in ton-miles (revenue and non-revenue) will be noted, as will also the increase in train speed of 6 per cent and a similar increase in both gross and net ton-miles per train-hour.

In a review of the operations of the Southern Railway in 1928 (*Railway Age*, April 20, 1929, page 912) attention was called to the rapid strides made by the

Table II—Comparison of Selected Freight Operating Statistics

	1929	1928	Per cent of change	
			Inc.	Dec.
Mileage operated .....	6,679	6,709		0.5
Gross ton-miles (thousands) .....	22,688,100	22,616,181	0.3	
Net ton-miles (thousands) .....	9,087,351	9,056,038	0.3	
Freight train-miles (thousands) .....	16,284	16,147	0.8	
Freight locomotive-miles (thousands) .....	16,990	16,822	1.0	
Freight car-miles (thousands) .....	631,149	628,712	0.4	
Freight train-hours .....	1,144,847	1,208,446		5.3
Car-miles per day .....	28.5	28.4	0.4	
Net tons per loaded car .....	22.1	22.4		1.3
Per cent loaded to total car-miles .....	65.1	64.3	1.2	
Net ton-miles per car-day .....	410	409	0.3	
Freight cars per train .....	39.7	39.9		0.5
Gross tons per train .....	1,393	1,401		0.6
Net tons per train .....	558	561		0.5
Train speed, miles per train-hour .....	14.2	13.4	6.0	
Gross ton-miles per train-hour .....	19,818	18,715	5.9	
Net ton-miles per train-hour .....	7,938	7,494	5.9	
Lb. coal per 1,000 gross ton-miles .....	154	157		1.9
Loco.-miles per loco.-day .....	53.1	52.6	1.0	
Per cent freight locos. unserviceable .....	13.2	11.5	14.8	
Per cent freight cars unserviceable .....	10.4	7.9	31.7	



Photo Worsinger

#### A Window Display in the New York Offices of the Canadian National

The relief map of Alaska, calling attention to the augmented Alaskan services of the Canadian National Steamships during 1930 from Vancouver, B. C., Prince Rupert and other Pacific Coast ports, was laid on a glass background by the drip of lighted candles. After the wax, spread on heated glass, had cooled, it was carved to the outline and relief required, and shellacked. Candles of different colors were used to obtain the required contrasts in shading.



# Relations of Locomotive Builders and the Railroads\*

*Mutual co-operation will assure continued improvement in motive power conditions, permitting still more economical operation*

By George H. Houston

President, Baldwin Locomotive Works

THERE is probably no opportunity for future economy in the operation of the railroads of the United States more fertile than in the field of motive power. Great as the progress has been in the past few years in improving the character and economy of motive power, equally great opportunity lies in the future along two lines of effort—first, in the further improvement in the design and construction of new motive power and second, in bringing up the average of motive power in use to a point much nearer to the best available than is now the case.

At the present time about \$1,300,000,000 per year, or around 22 per cent of the total operation revenue of Class I railroads of the United States is expended in the operation, maintenance and depreciation of motive power, and about \$100,000,000 additional is required to pay a return of 5 per cent on the original cost of this equipment estimated at \$2,000,000,000. These are large sums, but their consideration brings to mind only a portion of the motive power problem as the character of motive power and the effectiveness of its operation affects every other item of operating cost and particularly does it affect the quality and reliability of service rendered and the ability of a railroad to compete for business.

In spite of the fact that the locomotive has been in constant production and use in the United States for about 100 years, its characteristics of design are now undergoing as rapid change as at any time during the past 25 years, and there is nothing in the immediate prospect which would lead one to believe that final stability has been or ever will be reached until the locomotive is an obsolete and discarded device. This condition is created not so much by the advance in the science of steam engineering as by the improvement in the quality and character of the materials available, and also by the character of transportation service required by the shipper.

## The Job of the Builders

The motive-power department of each railroad must of necessity concentrate its personnel on the problems immediately before it and particularly on the problems of its own railroad. These men find it difficult through their own efforts to inform themselves fully as to what is being done elsewhere, or to gather within their own departments a clear and balanced reflection of the experience of all of the other railroads of the United States. It is at this point that the equipment companies qualified to build locomotives are prepared to render their first important service to the railroads—that of studying the problems confronting the motive-power engineer, of

informing themselves as to all of the possible solutions of each such problem and finally of advising with such motive-power engineer as to the best way of solving his own special problem.

These equipment companies are always ready and willing to give this service and further to participate as actively as conditions permit in the actual design and development of new motive power and in the improvement of existing equipment. The relations between the engineering staff of the equipment company and the motive-power department of the railroad should be intimate and confidential and one of mutual respect. Anything short of this will not permit of the best results.

The railroad of necessity must approach its motive-power problems not only from the viewpoint of the immediate operating economy to be effected by improvement in its motive power. It must consider initially the adequacy of the existing and contemplated motive power to operate the trains and maintain the schedules. Also, unfortunately, it must deal with the problem of capital investment appropriations and financing. Some years ago the railroads had to face a very difficult burden in finding the cash with which to pay for equipment, once they had actually acquired it. Fortunately, however, the railroads have enjoyed a period of substantial prosperity and the method of purchasing through the equipment trust has established such a satisfactory form of credit that this problem has largely disappeared.

The equipment company is in position to concentrate its attention largely on operating economies and convenience and reliability of service to be obtained and improvement in train performance to be secured by the proper motive power. Is it possible to improve and cement more closely the relations between these two groups and to perfect in any way the service offered by the equipment companies to the railroads?

## Progress Since 1905

Strange as it may seem, during the hundred years of history of steam locomotives, the greatest progress in development has taken place since 1905. By 1910 the superheater was in general use and increase in the temperature of steam has continued up to the present time. The feedwater heater was used experimentally in 1918, and had about 50 per cent application by 1923-25. Today all engines are equipped with feedwater heaters. Locomotive stokers did not exist in 1905 but came into use on the largest articulated locomotives by 1910, with general application by 1923-25. An economy of another kind, which I shall mention again later, has been the substitution of cast steel for cast iron and the introduction of the one-piece steel casting for the frame of the loco-

\* Abstract of a paper presented at the March meeting of the Western Railway Club, held at the Hotel Sherman, Chicago, March 17, 1930.

motive and the tender. Efforts in this direction started about 1915, but rapid progress was not made until about five years ago.

It is difficult to summarize the progress of the last 25 years in terms of percentage gains but I have attempted to bring out a few instances in the table. The figures measure the economy gains as between new locomotives of these periods. Think of the total economies to be gained by the substitution of new locomotives for old through the entire inventory of active motive power. In addition, these continually improved locomotives, in the hands of the engine crew in actual train operation, have produced very large additional economies of operation on the railroads. We do not have available figures on such additional transportation economies. But we do know that for all the freight locomotives of Class I roads in 1929 fuel consumption was 123 lb. per 1,000 gross ton-miles, compared with 162 lb. in 1921, a saving of 24 per cent. This is in spite of the fact that a large majority of these locomotives are more than 10 years old and better than a third are more than 20 years old. Think what this saving would be if all the obsolete motive power were replaced. In many other items of expense, the development of the locomotive itself has contributed largely to economies of railroad operation in other fields than those included in motive-power expense.

#### The Increase in Utilization

One of the most striking changes that has taken place in recent years has been the increase in the continuity of service procured from locomotives actually in use, with the substantial diminution in the number of locomotives actually at work at any one time. This trend is sound and should be encouraged in every way up to the

Developments in the Locomotive Since 1905

	1905	1910-13	1918	1923-25	1930	Per cent 1930 over 1905
Axle loads, lb. ....	40-45,000	50,000	55-60,000	63,000	65-72,000	+ 61
Typical tractive force, lb. ....	40,000	50,000	60,000	63,000	70,000	+ 75
Tender capac- ity, gallons	6-8,000	8-9,000	10,000	15,000	18-22,000	+186
No. of parts in locomotive bed...250 total, of which 35 were major parts.					1	
Steam pres- sure, lb. per sq. in. ....	180-200	200	200-210	210-225	250	+ 32
Steam temp., deg. F. ....	385 (saturated)	538 (sup. 150)	590 (sup. 200)	650 (sup. 250)	700 (sup. 300)	+ 82
Combustion rates, lb. coal per hr. per sq. ft. grate .....	150-200	130	120	120	100 or less	- 43
Steam con- sumption, lb. per i.hp.-hr.	28	21	20.5	19-20	18.5	- 34

point where all of the locomotives in existence are in use as nearly all of the time as possible, with only sufficient reserves to care for the peak loads that may come unexpectedly.

The old method of having a large number of locomotives at work a small portion of the time made necessary the use of locomotives for very long periods of time in order to get out of them the required mileage. For instance, about 35 per cent of the locomotives in existence belonging to all public service steam railroads are now over 20 years of age and about 79 per cent are over 10 years of age.

Does not this long life and slow demolition indicate too much of a drag in the application of the latest improvements to the great volume of working motive

power? The quicker the turnover, of course, the quicker the new design becomes the standard and the greater the aggregate benefit to be derived from the improvement.

#### Making Progress Real

In our public utility companies there is little prime mover equipment now running, other than for standby service, that is in excess of 10 years of age; and in the high pressure machine shops of the country there is little production machinery now in use that was in existence at the close of the war. For instance, General Motors Corporation is actually replacing its machine-tool equipment in the majority of its divisions on the basis of a five year life due to obsolescence of design. With the motive power of the railroads the following condition exists: Only about 13,000 locomotives, or about 20.7 per cent of the total number in existence, have been purchased during the 10 year period just ended.

Of course, these locomotives are substantially greater in tractive force than those previously used, so the percentage of new tractive force is somewhat greater than the numerical percentage would indicate; but granting this and without consideration of the growth in demand as measured by revenue ton-miles of work done, which is still growing in this country at the rate of about two per cent per annum, the percentage of locomotives in use which are more than ten years old is entirely too large. It is interesting further to note that the rate of locomotive deliveries to domestic railroads for the past three years, averaging 756 locomotives per annum, measured in terms of tractive force and again without consideration of growth in demand, indicates an average life expectancy of new motive power in excess of 50 years.

Put another way, locomotive purchases during the past three years were only 40 per cent of what they should have been to insure a replacement every 20 years.

Obsolescence is being further emphasized by the specialization of motive-power design that is going on everywhere today. Locomotives are constantly being built to operate under the peculiar conditions of a particular division or portion of a line. This motive power may well prove ineffective elsewhere or where operated under radically different conditions. We are told that much of the old motive power now in existence has been relegated to branch lines and is doing light service of such small volume as to make its economical operation of no moment.

This is true to a limited extent but will this method of dealing with old motive power suffice altogether in the future? It will be difficult, for instance, to relegate to a branch line some of the large slow-moving locomotives now in use in the freight service of the country, or some of the high-speed, high-power equipment now being built. Such a move would require the complete reconstruction of bridges and culverts and much heavier rail and roadbed, and, even then such locomotives would be so cumbersome to operate as to be entirely unsatisfactory.

#### Use Power Intensively and

#### Retire It More Rapidly

What then is going to become of these locomotives as the demands of traffic change and their obsolescence becomes more and more apparent? The only answer I can see is to use them so continuously as to wear them out as fast as possible and move them to the junk pile in a much shorter time than formerly, keeping them replaced by modern equipment.

What would be the effect if the railroads should adopt, insofar as possible, in the use of their motive power the methods used by the truck operators of the country?



The average life of a motor truck is five years, or less than one-sixth of the average life of a locomotive. The reason for this is that the truck operator realizes the progress being made in the art of truck design and he buys a truck with the full expectation of relegating it to the scrap heap within a comparatively short time because of obsolescence and uses it accordingly, getting the good out of it quickly and replacing it with a modern unit.

This speeding up of the progress from the producers' workshops to the junk pile is not simply a question of initially increasing the capital investment in motive power, but rather one of ultimately reducing over-all operating costs together with capital charges through the fullest use of the latest improvements.

In many fields of operation the railroad is looking ahead for quite a period and is planning its operations, and especially the operation of its mechanical facilities, with a deliberate and progressive policy. But motive-power purchases, as a whole, have fluctuated widely from year to year, with consequent loss to both railroads and locomotive manufacturers. Over the last ten years, orders placed with Baldwin by domestic users have averaged 440 locomotives per year during this period, but have fluctuated from a minimum of 85 in 1921 to a maximum of 889 in 1922. Turning to the figures of new locomotives built and delivered to public-service steam railroads by all manufacturers, including railroad shops, during the same period, we find a similar fluctuation ranging from a minimum of 541 locomotives delivered in 1928 to a maximum of 2,980 locomotives delivered in 1923 and an average of 1,281 locomotives built per year. We have gone back to 1854 and find that the same violent fluctuation in demand has always been in existence.

#### The Builders' Problem of Fluctuating Demand

There is nothing that would add more to the quality and economy of service given by the equipment companies than greater regularity and uniformity in their operation. For instance, in 1923 Baldwin was called upon to produce and deliver to domestic railroads in excess of \$80,000,000 of new locomotives; while in the year 1928 (only five years later) it was allowed to produce and deliver to domestic railroads only about \$14,000,000 of new locomotives. You will all appreciate the great difficulties resulting from running a large manufacturing plant at a certain volume one year and at 17 per cent of this volume another year. Consider for a moment what it would mean to run your railroads or even your repair shops in this manner. Assuming these are the extremes in the cyclical swings, would it not be possible to take something off the peak and apply it to filling up the valleys, thereby permitting a greater uniformity of operations with corresponding reduction in the plant facilities required to serve the railroads, a portion of which are used only one or two years out of ten? Substantial economies would result by thus effectively adjusting the facilities required to the real service required to be performed. This lack of uniformity in output is not paralleled in any other equipment industry I know of, outside of the car companies. This point is not mentioned as a criticism of past policies in the buying of motive power, but attention is called to it as a condition actually existent in the locomotive business and one that is not conducive to economical operation or the lowest cost of equipment, or the best service to the railroads.

[In the latter part of his paper, Mr. Houston referred to the development of high-pressure locomotives, concerning which he said that, personally, he did not see how much benefit could be obtained from greatly increased pressures involving the utilization of the water-tube fire-

box, so long as the reciprocating engine is retained, without compounding. He pointed out that much of the benefit derived by European practice in the use of higher pressures does not apply in America because of the lower cost of fuel and higher cost of labor in America as compared with Europe. While he believes the higher pressures will come, he does not look for the development to be rapid.

In discussing the development of the Diesel locomotive, he recognized the fact that the Diesel engine has become a permanent part of the motive power facilities in the United States, but that the growth in the unit power capacity of this type of locomotive must be slow and painstaking, each step in the development being carefully tested out before the next step is taken. Such a program, he indicated, will place Diesel locomotives of 3,000 or 4,000 hp. some time in the future, as he considers the immediate development of such units a practical impossibility.—EDITOR.]

## Rail Output Larger in 1929

STATISTICS issued by the American Iron and Steel Institute show that the production of steel rails in the United States in 1929 totaled 2,722,138 gross tons or 74,645 tons greater than in 1928, but 495,511 tons less than in 1926, the years of greatest production since 1913. The production of rails weigh-

Production of Rails by Weight Per Yard, 1916-1929.

	Under 50	50 and less than 85	85 and less than 100	100 and less than 120	120 pounds and over	Total gross ton
Years	pounds					
1916.....	295,535	566,791	1,225,341	766,851		2,854,518
1917.....	308,258	882,673	989,704	763,526		2,944,161
1918.....	395,124	665,165	888,141	592,462		2,540,892
1919.....	263,803	495,577	965,571	478,892		2,203,843
1920.....	489,043	433,333	952,622	729,118		2,604,116
1921.....	211,563	214,936	902,748	849,566		2,178,818
1922.....	265,541	274,731	728,604	902,900		2,171,776
1923.....	272,794	300,907	864,965	1,465,850		2,904,516
1924.....	191,046	213,274	853,431	1,175,581		2,433,332
1925.....	163,607	219,648	765,371	1,636,631		2,785,257
1926.....	197,260	256,287	797,662	1,966,440		3,217,649
1927.....	161,836	173,257	539,445	1,314,424	617,524	2,806,486
1928.....	134,197	125,726	465,393	1,203,749	718,428	2,647,493
1929.....	141,362	102,944	409,628	1,233,599	834,605	2,722,138

ing 100 lb. and less than 120 lb. per yd. was 1,233,599 tons, or 29,850 tons greater than in 1928, but 80,825 tons less than in 1927, while the production of rails weighing 100 lb. per yd. or more was 2,068,204 tons, or 101,764 tons greater than in 1926, the highest pre-

Production of Rails by Processes, Gross Tons, 1914-1929

Years	Open-hearth	Bessemer	Electric	Rerolled *	Total
1914.....	1,525,851	323,897	178	95,169	1,945,095
1915.....	1,775,168	326,952	...	102,083	2,204,203
1916.....	2,269,600	440,092	...	144,826	2,854,518
1917.....	2,292,197	533,325	...	118,639	2,944,161
1918.....	1,945,443	494,193	...	101,256	2,540,892
1919.....	1,893,250	214,121	50	96,422	2,203,843
1920.....	2,334,222	142,899	297	126,698	2,604,116
1921.....	2,027,215	55,559	5	96,039	2,178,818
1922.....	2,033,000	22,317	...	116,459	2,171,776
1923.....	2,738,779	25,877	118	139,742	2,904,516
1924.....	2,307,533	16,069	...	109,730	2,433,332
1925.....	2,691,823	9,687	...	83,747	2,785,257
1926.....	3,107,992	12,533	...	97,124	3,217,649
1927.....	2,717,865	1,566	...	87,055	2,806,486
1928.....	2,580,141	2,718	438	64,196	2,647,493
1929.....	2,662,163	3,486	723	55,766	2,722,138

\* Rerolled from old steel rails.

vious year. Rails weighing 120 lb. per yd. or more were produced in 1929 to the amount of 834,605 tons, or 116,177 tons more than in 1928, which year in turn showed a greater production than in 1927. Of special interest is the fact that the production of rails weighing 100 lb. per yd. or more amounted to 75.9 per cent of the total in 1929, while in 1928 this classification was 72.6 per cent of the total, this value being 68.8 per cent in 1927 and 39 per cent in 1921.

The statistics also showed that the production of alloy steel rails in 1929 was only 1,965 tons, or less than any year for which records are shown except 1927, being 4,488 tons under 1928 and 10,943 tons under 1920. Titanium rails showed a drop from 3,711 tons in 1928 to

Years	Production of Alloy-Treated Steel Rails, 1920-1929									
	Total production Gross tons	Production by alloys		Production by processes		Production by weight per yard				
		Titanium	Other alloys	Open-hearth and elect.	Bessemer	Under 50 lb.	50 and 85 lb.	85 and 100 lb.	100 and 120 lb.	120 lb. and over
1920	12,909	11,652	1,257	12,909	....	514	5,069	7,326		
1921	6,276	2,804	3,472	6,276	....	71	4,277	1,928		
1922	3,163	2,493	670	3,163	....	321	835	2,007		
1923	2,142	346	1,796	2,142	....	56	317	1,769		
1924	5,167	1,696	3,471	5,167	....	....	847	4,320		
1925	4,009	1,616	2,393	4,009	....	70	47	3,892		
1926	4,216	1,099	3,117	4,216	....	42	1,027	3,147		
1927	1,265	....	1,265	1,265	....	....	374	391	500	
1928	6,453	3,711	2,742	6,453	....	29	879	1,652	3,893	
1929	1,965	486	1,479	1,965	....	100	748	967	150	

486 tons in 1929, while manganese rails (10 per cent and over manganese) decreased from 2,713 tons in 1928 to 1,379 tons in 1929.

Girder and high T rails for electric and street railways are included in these statistics. For recent years the tonnage was as follows: 1922, 128,878; 1923, 130,056; 1924, 85,533; 1925, 98,620; 1926, 116,374; 1927, 99,621; 1928, 113,150; and 1929, 109,678 gross tons.

## Decrease in Car Loading Expected

SHIPPERS of the country, through estimates of the Shippers' Regional Advisory Boards, anticipate that carload shipments of the 29 principal commodities in the second quarter of 1930, will be approximately 8,211,451 cars, a reduction of 354,898 cars, or 4.2 per cent, below the loading in the corresponding period in 1929, the Car Service Division of the American Railway Association announces.

Of the 13 Shippers' Regional Advisory Boards, only one, the Allegheny board, anticipates an increase in transportation requirements for the second quarter of the year compared with the same period last year, while 12 expect a reduction. Three of the 12 boards reporting anticipated decreases report a decrease of only one-tenth of one per cent or virtually no change from the second quarter of 1929. These boards are the Pacific Coast, Southeast and Southwest boards. The other 9 boards which estimate a reduction are the New England, Atlantic States, Ohio Valley, Great Lakes, Central Western, Midwestern, Northwestern, Trans-Missouri-Kansas, and the Pacific Northwest.

The estimates of the boards as to the freight loadings by cars anticipated for the 29 principal commodities are as follows:

Board	Actual 1929	Estimated 1930	Per cent of increase or decrease
Central Western	267,750	254,720	4.9 Decrease
Pacific Coast	372,832	372,350	0.1 Decrease
Pacific Northwest	323,517	285,547	11.7 Decrease
Great Lakes	770,537	687,153	10.8 Decrease
Ohio Valley	873,363	838,327	4.0 Decrease
Mid-West	1,275,272	1,181,427	7.4 Decrease
Northwest	576,382	491,828	14.7 Decrease
Trans-Mo.-Kansas	423,600	414,067	2.3 Decrease
Southeast	992,730	991,933	0.1 Decrease
Southwest	560,893	560,186	0.1 Decrease
New England	170,711	166,115	2.7 Decrease
Atlantic States	952,390	910,504	4.4 Decrease
Allegheny	1,006,372	1,057,294	5.1 Increase
Total	8,566,349	8,211,451	4.2 Decrease

The estimate of increase in the Allegheny board district is based largely on anticipated greater freight car requirements for the movement of coal, cement, gravel, sand and stone, petroleum and petroleum products, and machinery and boilers. Car requirements for iron and steel and brick and clay products are expected to be somewhat less in the second quarter than for the same period last year.

Of the boards reporting reductions in the anticipated requirements for the second quarter, the estimate for the Great Lakes Board shows a reduction, compared with the same period last year, in shipments of automobiles, ore and concentrates, iron and steel, machinery and boilers, and livestock, although an increase is expected in grain shipments, flour, meal and other mill products as well as salt, agricultural implements, and canned goods.

In the Atlantic States board territory, which includes parts of the states of New York, Pennsylvania, and Maryland and all of the states of New Jersey, Delaware and the District of Columbia, estimates show an increase for the second quarter this year for a majority of commodities produced there, but the percentage of reduction for those commodities which show decreases is greater in almost every instance. Commodities for which reductions are estimated are iron and steel, machinery and boilers, automobiles, trucks and parts, coal and coke, and potatoes.

Estimated freight car requirements for commodities in the Northwestern board territory, also show a reduction under the same period last year, due largely to a drop in anticipated shipments of grain, flour, meal and other mill products, potatoes, ore and concentrates, lumber and forest products, iron and steel, and brick and clay products, although increases are expected for cement and agricultural implements and vehicles other than automobiles. A similar situation exists as to the Mid-western, the Trans-Missouri-Kansas, and the Central Western boards.

In New England, a small reduction in the estimated total freight car requirements was reported, reductions being anticipated for lumber and forest products, grain, iron and steel, coal and coke, with increases for petroleum and petroleum products, cement, potatoes, and brick and clay products. The estimate for paper, paper board and prepared roofing, which moves in considerable volume over New England lines, is unchanged from the actual loading in the second quarter last year.

For the Pacific Coast, estimated freight car requirements are virtually the same as last year. The estimate as to citrus fruits shows a reduction but a substantial increase is shown for other fresh fruits, potatoes, petroleum and petroleum products, automobiles, trucks and parts, and chemicals and explosives. Reductions are estimated, however, for canned goods, iron and steel, lumber and forest products, and gravel, sand and stone.

The anticipated reduction in freight car requirements for the Pacific Northwest territory is largely due to a decrease under the second quarter last year in the estimate as to shipments of lumber and forest products, which commodity moves in the heaviest volume of any in that territory.

In submitting reports to the Car Service Division, each board estimates the freight car requirements for the principal industries found in the territory covered by that board. On the basis of this information, it is estimated that, of the 29 commodities, increases in transportation requirements will develop for 12 as follows: Hay, straw and alfalfa; cotton, other fresh fruits except citrus, fresh vegetables except potatoes, poultry and dairy products, gravel, sand and stone, salt, petroleum and petroleum products; cement, brick and clay products, agricultural implements and vehicles, and fertilizers.



Commodities for which a decrease is estimated totaled 17, as follows: grain, flour, meal and other mill products, cotton seed and products except oil, citrus fruits, potatoes, live stock, coal and coke, ore and concentrates, lumber and forest products, sugar, syrup and molasses; iron and steel, machinery and boilers, lime and plaster, automobiles, trucks and parts, paper, paperboard and prepared roofing, chemicals and explosives, and canned goods.

The estimate in detail for various commodities follows:

Commodity	Carloadings		Estd. per cent	
	Actual 1929	Estimated 1930	Inc. %	Dec. %
Grain, All .....	276,990	259,851		6.2
Flour, Meal & Other Mill Products .....	241,282	240,576		.3
Hay, Straw and Alfalfa .....	60,071	62,311	3.7	
Cotton .....	34,266	38,345	11.9	
Cotton Seed & Products, Except Oil .....	15,918	15,851		.4
Citrus Fruits .....	46,326	24,951		46.2
Other Fresh Fruits .....	83,740	95,093	13.6	
Potatoes .....	63,532	58,621		7.7
Other Fresh Vegetables .....	81,413	82,006	.7	
Live Stock .....	322,919	306,931		5.0
Poultry and Dairy Products .....	48,177	49,537	2.8	
Coal and Coke .....	2,191,711	2,162,318		1.4
Ore and Concentrates .....	753,642	597,760		20.7
Gravel, Sand and Stone .....	798,774	800,758	.2	
Salt .....	33,359	33,696	1.0	
Lumber and Forest Products .....	1,016,008	958,029	1.9	5.7
Petroleum and Petroleum Products .....	604,844	616,287		1.6
Sugar, Syrup and Molasses .....	52,727	51,900		7.4
Iron and Steel .....	600,024	555,442		5.2
Machinery and Boilers .....	68,045	64,487	6.7	
Cement .....	218,000	232,510	.1	
Brick and Clay Products .....	189,435	189,694		.4
Lime and Plaster .....	65,355	65,101		
Agric. Implements and Vehicles, Other than Automobiles .....	40,156	41,731	3.9	
Automobiles, Trucks and Parts .....	300,462	248,194		17.4
Fertilizers, All Kinds .....	178,259	181,316	1.7	
Paper, Paper Board and Prepared Roofing .....	110,608	109,568		.1
Chemicals and Explosives .....	29,841	29,464		1.3
Canned Goods—All Canned Food Products (includes Catsup, Jams, Jellies, Olives, Pickles, Preserves, etc.) .....	40,465	39,123		3.3
Total All Commodities Listed .....	8,566,349	8,211,451		4.2

## Labor Leaders Ask For Consolidation Restrictions

WASHINGTON, D. C.

THE Railway Labor Executives' Association, composed of the heads of the "standard" railway labor organizations, after a meeting in Washington last week, issued a statement outlining a program of legislation intended to throw additional restrictions around the process of railway consolidation, which they hope will have the consideration of Congress if pending bills to amend the present consolidation law should be pressed for passage at this session, and which they say may be necessary even prior to the consideration of pending bills, in connection with activities before the commission under the present law.

According to the statement the labor leaders have been studying the subject for more than a year. As a result they not only express fear that consolidations may be pushed so rapidly as to have a serious effect upon the interests of the employees and employee relationships, which they ask to have protected, but they also take occasion to view with alarm many other aspects of the effect of consolidations upon the public interest. Aside from the points in which the employees are particularly interested in their relations with the roads as employees, they have apparently considered it necessary to include in the statement some sweeping general condemnations of the idea of railway consolidation to reinforce their demand that the Interstate Commerce Commission be given broad powers to im-

pose conditions in connection with such unifications as it may authorize.

For example, they say they "know" that "economical, efficient operation becomes more difficult as a railroad system expands beyond the effective control of a single head;" that the efficiency of management "is distinctly impaired as the size of a property increases beyond that which can be subjected to the constant personal supervision of a single management," and that "practical managers do not approve or welcome consolidations which mean the ultimate determination of policy by persons remote geographically and remote in interest from the territory served by a railroad."

According to the statement the railway workers particularly oppose "those consolidations which are promoted by financial manipulators and which will not provide better service but primarily will burden the interstate carriers with increased fixed capital charges, and which will destroy desirable competition and will deprive many sections of the country of essential service and undermine their existing prosperity."

The statement says that cities and towns along the lines of the railroads "are facing practical ruin through change of terminals, division points and shipping centers as a certain result of railroad consolidations," and, referring to the proposed unification of the Great Northern and Northern Pacific as if it were a consolidation already actually authorized by the commission, says that many protests are pouring into Congress and that "scores of cities have discovered that they will lose the essential basis of their prosperity" when "thousands of workers are moved away" as "railroad traffic centers are shifted and eliminated in the process of rail consolidations."

They ask that the commission be specifically authorized in ascertaining the public interest to investigate the effect of unification upon the employees and that it be authorized to require that hardships or losses upon employees as a result of unifications shall be minimized and/or compensated for by the carriers, so far as the commission shall determine that such provision can be made without imposing an unreasonable burden on the carriers involved.

They have become convinced that neither existing law nor any measures now under consideration by Congress provide adequate protection for the interests of either the users of transportation service or the employees. As representatives of railway labor they have watched, at close hand, "the destructive effects upon the employees of changes in the transportation industry, partly the result of programs of efficiency and economy and partly the result of corporate policies not productive of efficiency and economy." They say that "when divisions have been lengthened, when terminals and other facilities have been moved and consolidated, losses amounting to millions of dollars, losses of employment which have affected over 200,000 employees, and losses through part time employment which have affected almost all railroad employees, have been brought about and in many cases the public gain has been questionable."

"It cannot be argued by any well informed person that consolidations of railroads are necessarily advantageous to the public interest. Yet the powers which have been conferred upon the Interstate Commerce Commission and which it is proposed to confer in any pending legislation, fall far short of providing any assurance that the public interest will be protected in future consolidations. Certainly no effort whatsoever has been made up to date to protect the ulti-

mate interests of the railway employees in these consolidations and yet the future efficiency of steam transportation service and the continuity of that service must depend upon preserving the good will and efficient co-operation of 1,750,000 employees who must actually do the work. These men are entitled to have their interests considered and safeguarded."

For the reasons suggested, the Railway Labor Executives Association has instructed its counsel to draft certain amendments to the interstate commerce act, which it believes should be considered by Congress in connection either with a passage of new consolidation legislation or in the future administration of the present law by the Interstate Commerce Commission. This proposed legislation has been drafted in a tentative form because it has been uncertain when the subject might come before Congress and whether the pending consolidation bills, "which have the approval of the financiers promoting railroad consolidations," would be pressed for passage at the present session. The exact form in which this program will be presented to Congress will depend upon future developments. The following, however, are the main propositions which the labor leaders desire to present for consideration.

1—It should be made unlawful for carriers to consolidate except after specific approval and authorization by the Interstate Commerce Commission based upon findings of the commission that the proposed consolidation will positively promote the public interest in economical, efficient, reliable and reasonable transportation service; that it will (a) promote better service to the public, or (b) economy in operation without deteriorating essential service and (c) that it will not substantially restrain or lessen competition and (d) that it will not be inconsistent with the public interest in any material respect.

2—The commission should be specifically authorized in ascertaining the public interest to investigate:

- 1—The effect of the proposed unification upon the enforcement of existing laws.
- 2—The costs incurred or to be incurred in bringing about such unification.
- 3—The purposes of those instrumental in promoting such unification.
- 4—The character of ownership and management which will become responsible for the furnishing of public service as a result of such unification.
- 5—The effect of such unification upon the employees of the carriers involved and upon employment relations, including consideration of any substantial losses through unemployment, irregularity of employment, removal of homes, additional expenses, or otherwise, which may be imposed upon employees as a result of such unification.

3—The commission should be specifically authorized to refuse its approval if it finds that a proposed consolidation does not include any carrier which should be included, in order to promote the public interest so that the so-called "weak roads" may be gradually absorbed by stronger roads as a condition upon consolidating the stronger roads into larger systems.

4—The commission should also be authorized to protect the public interest by requiring, as a condition of its approval, that:

- 1—Existing routes and channels of trade and commerce shall be maintained.
- 2—That contractual and legal obligations to shippers, creditors, investors, employees, the public and public authority, shall be maintained.
- 3—That hardships or losses imposed upon employees as a result of such unifications shall be minimized and/or compensated for by the carrier, so far as the Commission shall determine that such provision can be made without imposing an unreasonable burden on the carriers involved.
- 4—That assurances of reasonable rates as a result of such unification shall be furnished through the establishment of a stable rate base for consolidated railroad systems which can be maintained and revised through accounting methods without perennial and expensive revaluations of railroad properties.

## Indefinite Delay For Rail Unification Proposed

WASHINGTON, D. C.

A PROPOSAL to delay for a considerable indefinite period all further progress in the direction of railway unification or consolidation under the consolidation provisions of the transportation act was made by Senator Couzens, of Michigan, chairman of the Senate committee on interstate commerce, on April 1, when he introduced in the Senate a resolution, S. J. Res. 161, to suspend the authority of the Interstate Commerce Commission under existing law to approve any consolidation or unification of railroad properties in any form. The resolution evidently is intended also as an effort to put a stop to activities toward acquisition of control of various roads, by declaring unlawful "any consolidation or unification of railroad properties (whether directly by consolidation, merger, lease, purchase or acquisition of control, or indirectly through the device of a holding company, or in any other manner) without the approval of the commission," although such activities as the Senator evidently had in mind do not usually go to the extent of unification. The resolution states that such consolidations or unifications "may be enjoined by any court of competent jurisdiction at the suit of the United States, the commission, any commission or regulating body of any state or states affected, or any parties in interest," and the commission "is hereby directed to withhold its approval of any such consolidation or unification until such time as Congress shall enact adequate legislation properly designed to protect and promote the public interest in such consolidations or unifications and until the Congress shall authorize the commission to exercise the powers over consolidations or unifications heretofore or hereafter conferred upon the commission."

Senator Couzens said he anticipated no difficulty in obtaining passage of the resolution by the Senate but that he did not know about the House. He has in the past made numerous statements indicating a desire that consolidation activities be held up pending the investigation of the holding company situation, which has now been undertaken by the House committee on interstate commerce, and it had come to be well understood that there was no chance for consideration of pending bills to amend the consolidation provisions of the present law until after the conclusion of that investigation.

The language of the many "whereases" in the preamble of the Couzens resolution indicates that he may have been influenced by the statement issued a few days before by the railway labor executives, as well as by many protests which have been made in and to Congress regarding the proposed unification of the Great Northern and Northern Pacific. The resolution refers to this as a consolidation already authorized, "although such a consolidation was held illegal by the Supreme Court in the Northern Securities case, and will substantially lessen and restrain competition in the Northwest from the Twin Cities to the Pacific Coast and, it is charged, will seriously injure the growth and prosperity of many communities along the lines of these railroads."

The preamble also declares that the commission under existing law has not adequate authority to protect the public interest and that legislation conferring additional powers upon it has been under consideration for several years. It refers to the commission's recommendation for an investigation of holding companies and to the commission's consolidation plan, which, it says, "it is strongly contended, does not provide for maintaining, as

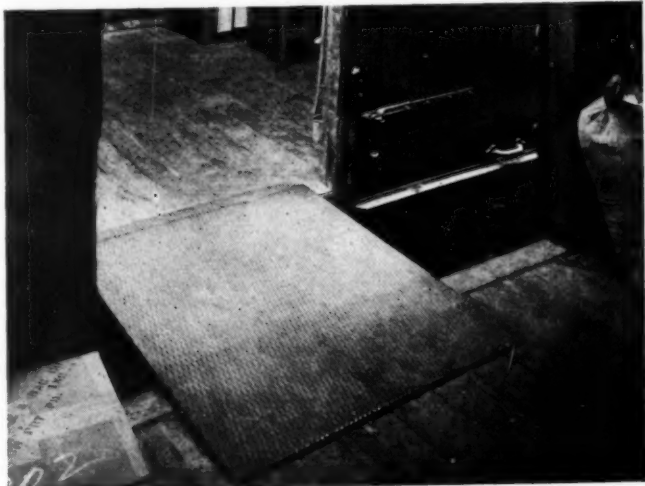


far as possible, existing competition and existing routes and channels of trade and commerce as required by law." Reference is also made to the assertions of dissenting members of the commission that the commission exceeded its authority in the Great Northern-Northern Pacific case and to the fact that the commission is not yet in a position to comply with the requirement that the securities of a consolidating corporation shall not exceed the valuation of the properties.

Other declarations are that: "There should be no further authorizations of consolidations and unifications of railroads by the Interstate Commerce Commission until legislation can be enacted by Congress (1) to cover the operation of holding companies, (2) to provide for adequate protection of the public interest through additional authority conferred upon the Commission, (3) to prevent widespread injuries to communities through decrease and disruption of their transportation service, (4) to check unnecessary uncompensated losses to railroad employees, and (5) to insure that consolidations authorized shall produce better or more economical transportation service and positive advantages to the public;" and that "there has been no showing made that railroad consolidations have resulted in any public benefit, but, on the contrary, there exists a strong sentiment that such consolidations will not be in the public interest."

## A Car Loading Plate

THE illustrated car loading plate, made from A. W. diamondette-pattern floor plate rolled from open-hearth steel, is a recent addition to the products of the Alan Wood Steel Company of Conshohocken, Pa. These plates with a patterned surface of raised oval-shaped diamonds of a size and spacing to accommodate the smallest truck wheels without jolting or shifting the load can be secured in two thicknesses,  $\frac{1}{8}$  in. and  $\frac{3}{8}$  in. The raised diamonds are designed to give the truck



The Alan Wood Car-Loading Plate

operator a firm foot-hold and yet have no effect on the acceleration or deceleration of the load during its passage over the loading plate.

The plate is flanged on one end and beveled on the other to give it a grip on both the car floor and the platform at soon as the load enters onto it. This feature also prevents creeping of the plate and eliminates the necessity of spiking or otherwise anchoring it to the car floor or the loading platform.

## Looking Backward

### Fifty Years Ago

Tucson, Ariz., was mad with delight on March 20, when the people of that ancient city, founded nearly 200 years before the steam railway came into being, assembled to celebrate the completion of the Southern Pacific into their community.—*Railway Age*, April 8, 1880.

The Eastern [now part of the Boston & Maine] has adopted the practice of long locomotive runs for its line between Boston, Mass., and Portland, Me., 108 miles. Heretofore the line has been in two divisions, locomotives and crews being changed at Portsmouth, N. H., while now both locomotives and crews make the entire run.—*Railway Age*, April 8, 1880.

The Wabash system has been still farther enlarged by the acquisition of the 132 miles of the Champaign, Havana & Western [now part of the Illinois Central], formerly the western extension of the Indianapolis, Bloomington & Western [now parts of the Cleveland, Cincinnati, Chicago & St. Louis and the Baltimore & Ohio], extending from Champaign, Ill., west to Havana, with a branch to Decatur. The road is intended to be extended to Quincy, Ill., and Keokuk, Iowa, giving access to two important points on the Mississippi river.—*Railway Age*, April 8, 1880.

Representatives of 30 railroads, aggregating nearly 30,000 miles of lines, at the annual convention of the General Passenger and Ticket Agents' Association at Cincinnati, Ohio, on March 17, condemned the practice of giving commissions to scalpers handling passenger tickets and of issuing passes to shippers. In the resolution on the latter subject it was stated that "many lines are carrying upon their passenger trains large numbers of persons on free passes which are issued for the purpose of procuring and controlling freight traffic, thereby reducing the earnings of the passenger department to the advantage of the freight department, and without adding to the actual income of the company."—*Railway Age*, April 8, 1880.

### Twenty-Five Years Ago

The Canadian parliament has passed the bill confirming the purchase of the Canada Atlantic by the Grand Trunk [now part of the Canadian National]. The road extends from Depot Harbor, Ont., on Georgian Bay, via Scotia and Ottawa, Que., to the Vermont state line, 400 miles, with 69 miles more of branches.—*Railway Age*, April 7, 1905.

T. C. Powell, heretofore freight traffic manager of the Southern, has been appointed fifth vice-president in charge of traffic in the West, and of the operating department of the St. Louis-Louisville lines, with headquarters at St. Louis. H. B. Spencer, heretofore general manager of the St. Louis-Louisville lines, has been appointed general manager of the Eastern and Western districts of the Southern, with headquarters at Washington. D. J. Brumley, division engineer of construction of the Indianapolis Southern, has been appointed principal assistant engineer of the Illinois Central, in charge of construction, to succeed H. R. Safford, who has been appointed assistant chief engineer of the latter road.—*Railway Age*, April 7, 1905.

### Ten Years Ago

Charles W. Galloway, federal manager of the Baltimore & Ohio system, has been elected vice-president in charge of operation and maintenance. Archibald Fries, general traffic manager in the corporate organization of the Baltimore & Ohio, has been elected vice-president in charge of traffic.—*Railway Age*, April 2, 1920.

The effect of improved motive power on railway operation is strikingly shown by the fact that whereas from 1888 to 1917 the revenue tons per train increased from 176 to 620, the fuel consumption per ton-mile decreased one-third, and that while the cost of coal per ton advanced from \$1.14 to \$2.20, the fuel cost increased only from \$.0006 to \$.0007 per ton-mile.—*Railway Age*, April 2, 1920.

## Communications and Books

### Aluminum in Tank-Car Construction

TO THE EDITOR:

NEW YORK.

In the March 15, 1930, issue of the *Railway Age* an article entitled "Aluminum in Tank-Car Construction," indicates that fuming nitric acid, sulphuric acid, and transparent lacquers (which latter products are probably classed as inflammable liquids by the Interstate Commerce Commission Regulations) are only a few of the products which may be shipped in the aluminum tank cars described.

I am, therefore, obliged to call your attention to the fact that no provision has been made to date in the I. C. C. Regulations or Specifications for the building of such tanks or for the transportation in such tanks of the materials specifically mentioned above.

The aluminum tank cars so far placed in service were authorized for experimental service by the A. R. A. Tank Car Committee for the transportation of non-dangerous articles, for which authorization of the Interstate Commerce Commission is not required. The Commission has issued no authorization for experimental service of aluminum tank cars for the transportation of dangerous articles such as fuming nitric acid, sulphuric acid, and inflammable transparent lacquers.

To avoid confusion as to the service in which aluminum tank cars may be used, I presume you will make an effort to correct the impression in the article referred to in a forthcoming issue of your publication.

B. W. DUNN,

Chief Inspector, Bureau of Explosives.

[The article pointed out that the products referred to by Mr. Dunn and others can be shipped in all-aluminum tank-cars "without becoming discolored or contaminated." It was not the intention to suggest that any of the dangerous articles mentioned are now being shipped in aluminum tank-cars or that such cars can be so used without suitable authorization from the Interstate Commerce Commission.—EDITOR.]

### New Book

*An Outline of The State Control of English Railway Rates and Facilities*, by H. C. Sparke. 105 pages, 7 in. by 4¾ in. Bound in cloth. Published by Chackerverty, Chatterjee & Company, Ltd., Calcutta, India. Price, Two rupees, eight annas.

As its title indicates, this book is a brief historical survey of railway legislation and regulation developments in England. Commencing with initial acts granting railway projectors the right of eminent domain, the treatise traces briefly subsequent steps leading finally to the passage of the Railways Act, 1921, the basis of the British government's present railway policy. More recent developments are also reviewed, including the De-Rating Acts and the Road Transport Act, 1928.

### Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,  
Bureau of Railway Economics, Washington, D. C.)

#### Books and Pamphlets

*The Government and Railroad Transportation*, by A. R. Ellingwood and W. Coombs. Discusses "What is interstate commerce?", the relative powers of federal and state governments in regulation of commerce, state regulation, and in extensive detail, federal regulation under the Interstate Commerce Act. 642 p. Pub. by Ginn & Co., Boston, Mass., \$4.

*Informal Settlement of Railroad Rate Controversies*. "Summary of information furnished by shippers' organizations

throughout the United States, representative Freight Associations and the Interstate Commerce Commission." 60 p. Pub. by Transportation and Communication Department, Chamber of Commerce of the United States, Washington, D. C., *Apply*.

*Materials for the Study of Public Utility Economics*, by Herbert B. Dorau. See Index under "Railways." The contents are grouped under the following topics: The Development of the Public Service Industries, Organization of the Public Service Industries, Units and Measurements, Economic Characteristics of Public Service Industries, The Legal Status of the Public Service Industries, Regulation of Public Service Industries, The Cost of Service, The Labor Factor, Taxation, The Value of Property and Plant, Maintaining the Plant and the Investment, Capital and Capitalization, The Rate of Return, the Cost of Public Utility Capital, The Revenue of Public Service Industries, the Price of Public Utility Services, and Ownership of the Public Service Industries. 975 p. Pub. by The Macmillan Company, New York City, \$5.

#### Periodical Articles

*The Basis of Depreciation Charges*, by Fritz Schmidt. "Whether depreciation charges should be based on cost or replacement value, although seeming to be a question of only theoretical importance, has been a very practical one to all European nations which have gone through an inflation period." *Harvard Business Review*, April 1930, p. 257-264.

*Co-ordinating Various Forms of Transport—A Discussion of the Problems and Possibilities of Integrating Rail, Motor and Water Transport Systems*, by Ralph Budd, L. A. Downs and Elisha Lee. With an editorial foreword on the "ideal transportation system." *Engineering News-Record*, February 27, 1930, p. 350-357.

*Frozen Foods—A New Industry*, by C. W. Steffler. "When foods are shipped frozen, the time element is largely removed, congestion at terminals is reduced, and the whole distribution is made more orderly. . . Increasing attention has been devoted by engineers and manufacturers to the need for adequately refrigerated railroad cars, ship holds and trucks. . . Motorcycle side cars are being equipped with refrigeration for short hauling, and the flying refrigerator has already made its appearance." p. 12. *Trade Winds*, March 1930, p. 11-15.

*Preliminary Work of Columbia's New Transportation Board*, by E. W. James. Charles Richards of the French railway administration is advisory member of the board for railways. Recommendations for railway construction, p. 118-122. Illustrated. *Bulletin of the Pan American Union*, February, 1930, p. 111-123.

*The Quick-Freezing Process and Distribution of Perishable Foods*, by Allen Shepard. "The process may have such a large influence on our food distributing system that a review of its prospects will be especially interesting while it is still in an early stage of commercial development." p. 339. *Harvard Business Review*, April 1930, p. 339-345.

*Recommendations of South African Road Motor Competition Commission*, by Edward B. Lawson. "The creation of a politically independent national road board, functioning under a ministry of transport, into which will be merged the present ministry of railways and harbours, the South African Shipping Board, and the air board, is another of many far-reaching recommendations." *Commerce Reports*, March 24, 1930, p. 796-797.

*The Steel Container as a Method of Handling Freight*, by Ross M. Cunningham. "Both the economies of container operation and the effects of the container rate have been treated, certain economies of operation standing out clearly, while others are of doubtful significance." p. 337. *Harvard Business Review*, April, 1930, p. 329-338.



# Odds and Ends of Railroading

## Fiction Is Very Strange

Another case of lack of knowledge among fiction writers is that of Samuel Merwin. In his novel, "Lady Can Do," the heroine achieves the truly remarkable feat of taking a train for Long Island out of the Grand Central station.

## Twenty-Five Locomotives on One Train

The Boston & Maine handled a train recently with 25 locomotives. Only one of the locomotives was in operation, however, the other 24 being loaded on flat cars. They were the narrow-gauge locomotives of the Boston, Revere Beach & Lynn, enroute to a blast furnace in Pennsylvania, for melting.

## Air Hose Saves Life

Merle Todd, of Cadillac, Mich., who is 18 years old, fell from the top of a freight train, and the force of his fall saved his life. The youth was on top of a box car, slipped and went down beneath two cars. He struck an air hose, which disconnected and stopped the train, before the oncoming wheels reached his body. Although seriously injured, with a broken vertebra and two pelvic fractures, Todd is expected to recover.

## C. of Ga. Family

The Central of Georgia is not without its railway dynasty. James Bradley Mainor and his five sons have served that line for a total of 106 years and five months as follows: James B. Mainor, 41 yr. 9 mo., pensioned supervisor; James T. Mainor, chief clerk to superintendent, 26 yr. 4 mo.; Garrett Mainor, chief clerk to agent, 13 yr. 6 mo.; Haywood Mainor, flagman, 5 yr. 11 mo.; Forrest B. Mainor, clerk-stenographer, 7 yr. 3 mo.; Walter F. Mainor, clerk-stenographer, 5 yr. 4 mo. A sixth son, now deceased, served two years as a flagman. Two son-in-laws and a grandson are also in the service of the Central of Georgia.

## Fifty-Year-Old Box Car Found in Bed of Stream

While making excavations for a new center pier for a bridge across Bush river, near Newberry, S. C., on the Columbia-Greenville line of the Southern, construction forces struck an obstruction about six feet below the bed of the stream. This was found to be an old, frame box-car which had gone into the stream approximately 50 years ago. It was necessary to remove the car before the cofferdam could be carried to bed-rock, about 12 ft. below the bed of the stream. The car was found to have contained merchandise. Several bottles of sperm oil and turpentine were recovered, also two quarts of a strange liquid which formerly moved in commerce but which none of the members of the bridge force could recognize, either by taste or aroma.

## Speaking of Colors

Manchester's highly critical standard of artistic appreciation has set a problem for the chiefs of the London, Midland & Scottish and the London & North Eastern, whose efforts to reach a solution have taken a novel and amusing form. A coach for the new Manchester, South Junction & Altrincham line electric service, which made its appearance at Euston station (London) for the inspection of leading railway officials, has one side painted a vivid emerald green and the other in maroon red. The panels and windows are painted and lined in an extraordinary galaxy of colors, including red, gold, cream, black and salmon pink. The ends of the coach are also painted in different colors, while the painting scheme on one side is altered every few feet. The result is so startling and weird as to draw crowds of puzzled and amused passengers to gaze at the strange looking vehicle. Mancunians can rest assured, however, that such vivid-hued "rainbow" coaches will not be provided for their travels between the city and Altrincham. After due deliberation, one

color scheme will be selected from the many in which the experimental coach is painted, and will be made standard.—Manchester (England) Evening Chronicle.

## New Hudson Bay Station Names

### Recall Canada's Early History

The names of famous British explorers and naval men who were associated with the early history of the Hudson Bay region are commemorated in a number of new stations which have been established along the northern section of the Hudson Bay Railway. The names selected, with their historical significance, as announced by the Canadian National, are:

Kellett—after Capt. Kellett, C. B., of R.H.M. *Resolute*, who visited Lancaster Sound, Melville and Banks Islands between 1852 and 1854.

Back—after George Back, of the Royal Navy, one of the officers who accompanied Sir John Franklin's party to Hudson Bay between 1819 and 1822.

McClintock—after Capt. F. I. McClintock, R. N., of Lady Franklin's yacht, *Fox*, which brought back precise information of the fate of Sir John's ships *Erebus* and *Terror* between 1857 and 1859.

Belcher—after Capt. Sir Edward Belcher, C.B., of H.M.S. *Assistance*, who visited Wellington Channel between 1852 and 1854.

Cromarty—after one of the early Hudson Bay factors stationed at Fort Severn.

Chesnaye—after Aubert de la Chesnaye, a merchant and fur trader of Quebec, who, in 1679, started "The Company of the North," and who sent Radisson to Hudson Bay with two vessels in 1682.

Munk—after Jens Munk, who visited Churchill in 1619 in the vessel *Lamprey*.

Bylot—after Robert Bylot, one of the crew of Hudson's ship *Discovery* in 1610.

Digges—after an English merchant who with others financed Henry Hudson's trip to Hudson Bay in the *Discovery* in 1610.

Mile 426 has been given the name of "O'Day" after J. E. O'Day, one of the engineers in charge of construction of the new line; Mile 502, the head of tide water on the Churchill River, will be known as "Tidal." The northern terminus, hitherto known as "Fort Churchill" or "Port Churchill," is to be called "Churchill" in accordance with a recent ruling of the Geographic Board of Canada.—Railway Gazette (London).

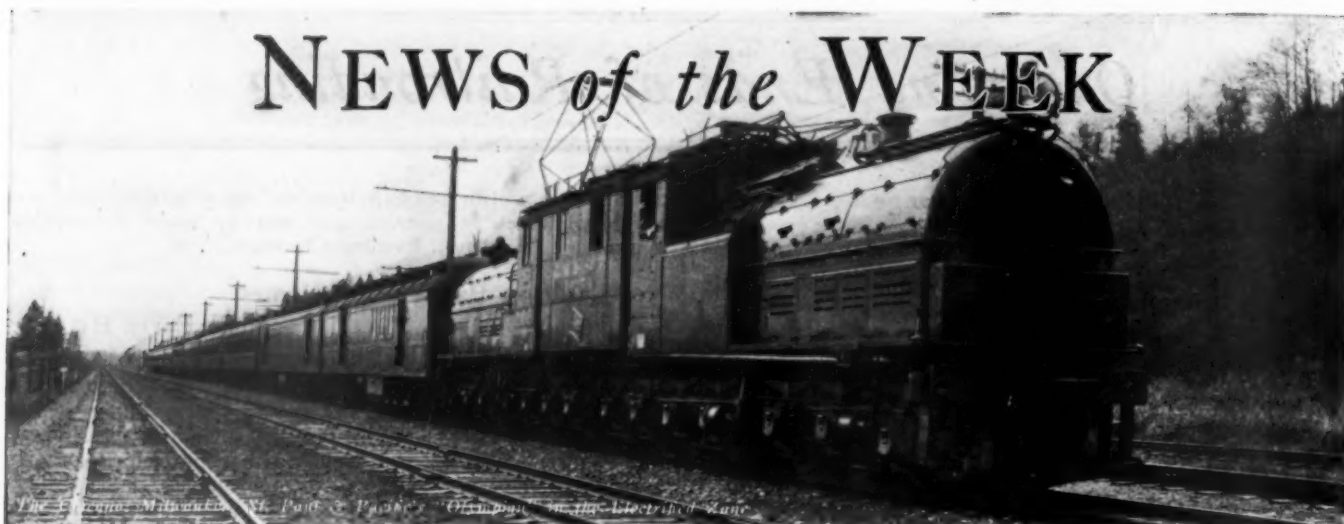
## Mountain-Climbing Equipment

While the main-line railways of Brazil are modern in every respect, tucked away in the mountains one may find an occasional remnant of other days. Such a one is the locomotive shown in the illustration. This cog-and-rack engine takes trains from Sao Paulo to Cantareira, which is situated some 30 or 40 miles away, in the high hills.



The Climber at the Sao Paulo Station

# NEWS of the WEEK



CLYDE L. SEAVY, who has been a member of the Railroad Commission of California since 1923, has been elected president of that body, according to the plan of rotating the chairmanship each year.

THE RAILWAY CAR FOREMEN'S CLUB OF PEORIA AND PEKIN will hold its next meeting on Tuesday evening, April 15, at the Union Station, Peoria, Ill. The discussion will be on wheels and air brakes.

THE CAR FOREMEN'S ASSOCIATION OF LOS ANGELES will hold its next meeting on Monday evening, April 14, at the Pacific Electric Building, Los Angeles, Cal. A. J. Troja, of the Griffin Wheel Company, will speak on wheel service, the talk to be illustrated by a motion picture.

THE CENTRAL RAILWAY CLUB will hold its next meeting on Thursday evening, April 10, at Hotel Statler, Buffalo, N. Y. J. E. Saunders of the Lackawanna and J. J. Corcoran of the New York Central will address the meeting on operation of automatic train control on their respective roads. P. J. Langan, supervisor of air-brakes of the Lackawanna will also speak. There will be music by the D. L. & W. Glee Club and also a buffet luncheon.

## Bill for Adjudication of Short Line Claims

The Senate on April 1 passed the bill, S.571, to amend section 204 of the transportation act to confer upon the courts jurisdiction to set aside orders of the Interstate Commerce Commission involving claims of short line railroads for the reimbursement of deficits for the period of federal control. The commission has variously construed the word "deficit" to mean an operating loss or a decrease in income, and the cases involve many other questions, such as the time when the road was taken over by the federal government or whether it was actually taken over.

## Safety Section Meets at Denver

L. G. Bentley, chairman, announces that the annual meeting of the Safety Section of the American Railway Association will be held, not at Colorado

Springs, as stated in Circular 252, but at Cosmopolitan Hotel, Denver, Colo., on Tuesday, Wednesday and Thursday, July 1, 2 and 3. The program is expected to be completed shortly.

## Southern Pacific Labor Clearing House

The Southern Pacific has established an employment clearing house system through which, as far as possible, employees temporarily laid off in one occupation or locality will be re-employed by the railroad in other work or in another place. The plan is intended to stabilize forces and avoid the dropping of employees through seasonal fluctuations in business and the varying demands of maintenance and improvement work.

## Bus Bill Before Senate Committee

The Parker bill, providing for the regulation of interstate bus transportation by the Interstate Commerce Commission, which was passed by the House on March 24, was taken up for consideration by the Senate committee on interstate commerce on April 2. No action was taken and it was stated that the time of the session was taken up with a general discussion of provisions of the bill. Another meeting to consider it was called for April 8 to give members time for further study of the bill.

The special committee on motor vehicle legislation of the National Association of Railroad and Utilities Commissioners has adopted resolutions recommending that the Senate committee report the bill favorably without further hearings and that it be passed by the Senate in the form it was passed by the House.

## Ohio Commission Sanctions Small Crews on Rail Cars

The Public Utilities Commission of Ohio, in dismissing a complaint against the Wheeling & Lake Erie has ruled that railroads are not required to employ full crews on electrically-operated railroad coaches. The commission held that the cars, although propelled by

gasoline motors driving an electric dynamo, come within the classification of electric cars and therefore are not subject to the full crew law. The complaint had been filed by the Brotherhood of Locomotive Firemen and Enginemen who alleged that the W. & L. E. had violated the law in the operation of gas-electric rail cars between Toledo and Zanesville.

## Railway Fire Protection Association

News letter No. 38, which has been issued by the Railway Fire Protection Association, R. R. Hackett, secretary, Baltimore, Md., contains minutes of the meetings of the Southern Section in Atlanta, Ga. on February 19, and of the Eastern Section in New York on January 19. Other interesting data in the pamphlet include notes on a fire in a transformer in a fire-proof building, September 18, 1929; a derailment on January 9 of a freight train which was burnt up by gasoline; a fire in a gasoline electric rail passenger car, and other instructive matter.

## Express Highway Planned From New York to New Haven

Under the provisions of a bill introduced in the New York Legislature on April 1, the New York & New England Motorways Corporation would be chartered to build an elevated high-speed motor highway from a point in Bronx county, at or near Fort Lee, through Westchester county to the Connecticut state line, there to connect with a similar roadway to be built in Connecticut. Present plans call for the construction of a four-lane highway above or adjacent to the right-of-way of the New York, New Haven & Hartford.

The corporation is authorized by the bill to enter into a contract with a transportation company to operate motor coaches over the highway subject to the approval of state public service commissions. It is understood that the New York, New Haven & Hartford, in return for allowing the use of its stations to patrons of the highway, has an option for furnishing this coach and truck service, including the construction in Con-



necticut, the estimated cost of the project is \$200,000,000, which would be raised by the sale of bonds secured by tolls charged for the use of the system and rental or operation of concessions for oil, gasoline, etc. The state has reserved the right to recapture the project by giving one year's notice and paying the original cost plus the original investment of the promoters.

The New York-New Haven highway is planned as the first link in an express motor way from New York to Boston which would eventually come under the control of a tri-state commission similar to the Port of New York Authority and other interstate bodies.

#### \$6,638,030 Asked for C. N. R.

Further supplementary estimates for the fiscal year ending March 31 next were tabled in the House at Ottawa last week by Hon. Charles Dunning, Minister of Finance, on account of the Canadian National. The total sum is \$6,638,030, of which \$6,010,639 is to meet expenditures made through amalgamations, and the remainder, \$627,390 is to meet deficits incurred in operating on the Atlantic region under the Maritime Freight Rates Act which granted a 20 per cent reduction on freight rates in the Maritime provinces, the railways to be reimbursed for any deficits incurred by them in hauling freight under the reduced rates. One big item in the larger amount is accounted for by an advance of \$4,171,000 to the Grand Trunk Western for the terminal and suburban work in Detroit.

#### Railroad Tie Producers' Convention

The twelfth annual convention of the National Association of Railroad Tie Producers will be held at the Hotel Peabody, Memphis, Tenn., April 29-May 1. The following is the program:

##### TUESDAY, 9:30 A.M.

Address on "Some Growth Possibilities in the Hardwoods of the Lower Mississippi Valley" by G. H. Lentz, silviculturist, Forest Service, New Orleans, La.  
Address on "The Separation of Cross Ties by Grades and Groups" by Thos. H. Wagner, Jr., southern manager, T. J. Moss Tie Co., Shreveport, La.  
Report of special committee on statistical information, by E. E. Pershall, chairman.

##### WEDNESDAY, 9:30 A.M.

Address on "Future of the Wood Cross Tie" by C. C. Warne, first assistant purchasing agent, New York Central, New York City.  
Address on "The Seasoning and Treating of Water Oak Timber Cut from Swamp Land" by N. W. McGough, treating engineer, Texas & Pacific, Texarkana, Ark.  
Address on "Extending the Use of Timber through Wood Preservation" by C. C. Cook, president American Wood Preservers' Association and maintenance engineer, Baltimore & Ohio, Baltimore, Md.  
Address on "The Proper Use of Anti-Splitting Devices" by C. W. Green, timber treating engineer, New York Central, Toledo, Ohio.  
Address on "Line Production in New England" by F. C. Sheehan, office assistant to purchasing agent, New York, New Haven & Hartford, New Haven, Conn.

##### THURSDAY, 9:30 A.M.

Address on "The Protection of Cross Ties from the Time of Cutting and Making Until the Time of Treatment" by J. R. Keig, manager, Kirby Lumber Co., Beaumont, Tex.  
Report from National Committee on Wood Utilization, by E. E. Pershall.  
Reports of general conditions in the tie industry, by district officers.  
Election of officers.

The annual dinner will be held on Wednesday evening and will be addressed by C. E. Johnston, president, Kansas City Southern, Kansas City, Mo., and M. E. Towner, general purchasing agent, Western Maryland, Baltimore, Md.

#### C. P. R. Earnings Down in February

The statement of earnings and expenses of the Canadian Pacific for February, reveals operating net for that month at \$851,492, as compared with \$1,791,372 in the corresponding month of last year, a decrease of \$939,879.

Gross for the month is shown at \$12,053,903, a decrease of \$2,404,341, while operating expenses at \$11,202,411, show a decline of \$1,464,461 from those for February of last year.

For the first two months of the year ending with February, operating net amount to \$1,587,275, a decline of \$2,100,029 from the corresponding two-month period of last year. Gross earnings for the two-month period show a decrease of \$5,598,537, while operating expenses are down by \$3,498,507.

The following table shows the earnings, expenses and net profits for the month of February, with comparisons:

	FEBRUARY		
	1930	1929	Dec.
Gross .....	\$12,053,903	\$14,458,245	\$2,404,341
Exp. ....	11,202,411	12,666,872	1,464,461
Net .....	\$851,492	\$1,791,372	\$939,879
TWO MONTHS ENDING			
	Feb., 1930	Feb., 1929	
Gross .....	\$24,725,307	\$30,323,844	\$5,598,537
Exp. ....	23,138,032	26,636,539	3,498,507
Net .....	\$1,587,275	\$3,687,304	\$2,100,029

#### Opposition to Rio Grande Purchase of D. & S. L.

Intense antipathy to the application of the Denver & Rio Grande Western to purchase the Denver & Salt Lake developed at the closing day's hearing before Haskell C. Davis, Interstate Commerce Commission examiner at Denver, Colo., on March 25. Following the reiteration of William H. Williams, chairman of the executive committee of the Rio Grande Western, that that road would drive a new tunnel rather than pay increased rent for the use of the Moffat tunnel, a number of Colorado business men expressed their opposition to the purchase. The remaining days of the hearing, which was transferred to Salt Lake City, Utah, on March 27, were characterized by repeated attempts of opposition witnesses to interject testimony concerning the present court litigation over the Moffat tunnel.

E. C. Johnson, representing the town of Craig, Colorado, the present western terminus of the Moffat road, and those who are interested in the extension of the railroad into the Uintah basin and Salt Lake City, declared that "the Rio Grande should never be permitted to get hold of the Moffat road. Rio Grande control perhaps would close our coal mines and take away our live stock business. We are on a main line now. If the Rio Grande takes over the Mof-

fat road we shall be on a side track." Other witnesses from the Uintah basin felt that if the Dotsero cutoff were constructed from the western end of the Moffat tunnel to a connection with the Rio Grande Western, the railroads would not feel inclined to construct an extension west from Craig. Gerald Hughes, chairman of the board of the D. & S. L., opposed any action that would interfere with the construction of an extension from Craig. One group of intervenors, the majority bondholders of the Rio Grande Southern, sought protection against abandonment of that 162-mile line.

When the hearing shifted to Salt Lake City, the Utah Shippers' Traffic Association was allowed to present a resolution favoring the granting of the purchase application only upon the condition that any road constructing an extension westward from Craig be given "unlimited trackage rights" over the Denver & Salt Lake and through the Moffat tunnel. Julian M. Bamberger, vice-president of the proposed Salt Lake & Denver, which several years ago applied to the Commission for permission to construct a line between Provo, Utah, and Craig, testified that construction of the Dotsero cutoff would jeopardize the S. L. & D. plan and would deprive it of potential through traffic. Mr. Bamberger stated that only about \$50,000, or enough to complete the survey, had been subscribed for the railroad, which was intended to be a community enterprise on the part of the Uintah basin.

E. E. Corfman, president of the Public Utilities Commission of Utah, declared that the Rio Grande Western should be allowed to make the purchase only upon the condition that it would not oppose the Craig extension into the Uintah basin. B. H. Taylor, vice-president of the D. & R. G. W., the only rebuttal witness for the applicant, denied that competition existed between that railroad and the D. & S. L. for traffic in the territory west of Orestod, Colo.

Examiner Davis announced that briefs in the case would be received by the Commission until May 1.

#### Committee to Investigate Holding Companies

Commissioner Joseph B. Eastman of the Interstate Commerce Commission has been asked by the House committee on interstate commerce to be the first witness (April 15) in connection with its investigation of the ownership of railway securities by holding companies, investment trusts, etc. This was decided upon by the committee at a meeting on April 1 at which it approved a plan of procedure for the investigation. Questionnaires prepared under the direction of Dr. W. M. W. Splawn, special counsel of the committee, are to be sent to the railroads and to the companies supposed to own railroad securities and, after hearing from the commission, which suggested the investigation with a view to possible legislation for the regulation of holding com-

panies, the committee is expected to call later representatives of the Alleghany Corporation and the Pennroad Corporation. It was the activities of these companies in acquiring stocks of roads of strategic importance in connection with various proposals for the grouping of eastern railroads that caused the commission to express the fear that the government was losing control of the process of railway unification.

After an investigation of the facts of the situation has been made the committee will probably hold further hearings, possibly at the next session of Congress, as to proposals for legislation dealing with the subject. Meanwhile, Senator Couzens, of Michigan, has introduced in the Senate a resolution providing that the authority given the Interstate Commerce Commission by existing law to permit railway unifications shall be suspended and that no such unification shall be permitted until further action by Congress.

### Sir Henry W. Thornton on New England Consolidations

Sir Henry W. Thornton, chairman and president of the Canadian National outlined his ideas on consolidation proposals for New England railroads in a recent statement made before the New England Governors Railroad Committee at Montpelier, Vt. The statement in part follows:

There seem to be three conceivable ways of dealing with the New England transportation problem.

There is, first, the proposal that the various New England transportation lines should be assembled in one group, generally termed the New England group.

The second proposal is that there should be what might be described as sectional groupings—that is to say, that the railways shall be divided into perhaps about three systems.

And then there may possibly be the third choice, of leaving things alone and allowing nature to take its course.

There are two dangers which one can foresee, to the formation of a New England group. The first one which will almost immediately occur to a casual observer, is the elimination of competition within New England. That would perhaps have been a more dangerous thing to contemplate 25 or 30 years ago than it is today; because in this day and generation I think it is safe to assume that most business men and most railway men consider that the absence of competition only lays a greater responsibility upon the enterprise, to retain its position.

The second and most serious objection that may be urged against a complete New England group is that it is all very well if such a group is under control and directed by those who have exclusively at heart the welfare of New England itself. But on the other hand if such a group fell under the direction of a Pharaoh who knew not Joseph, and undertook to operate that group in furtherance of interests outside of New England, the situation might become much worse than it was. However, it should not be beyond the ability of men to meet such an objection.

Consequently you have, in the consideration of the New England group, certain objections and certain advantages which I have outlined. My own opinion for what it is worth is that the advantages outweigh the disadvantages.

Then, the second proposal would be to form sectional groups. That, in precisely the same way as the complete grouping abandons competition, excites competition. You have there all the disadvantages of competition, and you must consider whether you have avoided the possible menace to New England of your transportation systems falling under the control, which as I said before, might be outside of New England and not as heartily in the interests of New England as it might be otherwise.

Again, in such a proposal you have a greater difficulty in securing co-ordination, you have larger overhead charges, and there is the probability of waste in service and in operation. With respect to that contrarily, I would say that I think the disadvantages outweigh the advantages.

The third proposal I think may be discarded with merely a word. It is true probably that certain sections of New England may be and doubtless are well served by the present transportation facilities and of course are content. However that may be, you who are examining the problem must look at it not from the sectional point of view but from the point of view of what is best for the whole of New England. And in that thought you may content yourself with the theory that if all of New England prospers, each part of New England must equally prosper. I think that it would be a doubtful expedient to cast your transportation problems upon the water and leave them to the vagaries of financial gales which might blow from time to time, and that on the whole you are wise in taking the problem now and attempting its solution when the whole situation is relatively placid.

In so far as the Canadian National Railways is concerned, we have enjoyed the hospitality of New England and more particularly the state of Vermont for many years.

The Central Vermont many years ago fought the battle of differentials. Those differentials I believe have been of advantage to the people of New England. It provides an important northern outlet for Canadian production and a useful and important avenue for the admission of various commodities to New England.

## Meetings and Conventions

*The following list gives names of secretaries, date of next or regular meetings and places of meetings.*

- AIR BRAKE ASSOCIATION.**—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Next meeting, May 13-16, 1930, Stevens Hotel, Chicago. Exhibit by Air Brake Appliance Association.
- AIR BRAKE APPLIANCE ASSOCIATION.**—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.
- AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.**—J. D. Gowin, 112 W. Adams St., Chicago.
- AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.**—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, April 8-10, 1930, Clarendon Hotel, Daytona Beach, Fla.
- AMERICAN ASSOCIATION OF PASSENGER TRAFFIC**

- OFFICERS.**—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.
- AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.**—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 16-19, 1930, Hotel Nicolet, Minneapolis, Minn.
- AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.**—F. R. Borger, Supt. Dining Car Service, Chicago, Indianapolis & Louisville Ry., 836 Federal St., Chicago.
- AMERICAN ELECTRIC RAILWAY ASSOCIATION.**—Guy C. Hecker, 292 Madison Ave., New York. Annual Convention, June 23-26, 1930, San Francisco, Cal.
- AMERICAN RAILWAY ASSOCIATION.**—H. J. Forster, 30 Vesey St., New York, N. Y.
- Division I.—Operating.**—J. C. Caviston, 30 Vesey St., New York, N. Y.
- Freight Station Section.**—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago. Next meeting, June 17-20, 1930, Brown Hotel, Louisville, Ky.
- Medical and Surgical Section.**—J. C. Caviston, 30 Vesey St., New York. Next meeting, April 15-16, 1930, Edgewater Gulf Hotel, Biloxi, Miss.
- Protective Section.**—J. C. Caviston, 30 Vesey St., New York. Next meeting, June 17-19, 1930, Hotel Statler, Buffalo, N. Y.
- Safety Section.**—J. C. Caviston, 30 Vesey St., New York. Annual meeting, June 24-26, 1930, Cosmopolitan Hotel, Denver, Colo.
- Telegraph and Telephone Section.**—W. A. Fairbanks, 30 Vesey St., New York. Next convention, Sept. 16-19, 1930, Royal York Hotel, Toronto, Ont.
- Division II.—Transportation.**—G. W. Covert, 431 South Dearborn St., Chicago. Next meeting, May 7-9, 1930, Hotel Cleveland, Cleveland, Ohio.
- Division III.—Traffic.**—J. Gottschalk, 143 Liberty St., New York.
- Division IV.—Engineering.**—E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.
- Construction and Maintenance Section.**—E. H. Fritch.
- Electrical Section.**—E. H. Fritch.
- Signal Section.**—H. S. Balliet, 30 Vesey St., New York.
- Division V.—Mechanical.**—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual convention, June 18-25, 1930, new Auditorium, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.
- Equipment Painting Section.**—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next convention, September 9-11, 1930, Congress Hotel, Chicago. Exhibit by Supply Men's Association.
- Division VI.—Purchases and Stores.**—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual convention, June 18-20, 1930, New Auditorium, Atlantic City.
- Division VII.—Freight Claims.**—Lewis Pilcher, 431 South Dearborn St., Chicago. Next meeting, June 10-13, 1930, Olympia Hotel, Seattle, Wash.
- Division VIII.—Motor Transport.**—George M. Campbell, 30 Vesey St., New York, N. Y. Next meeting, June 18-20, 1930, New Auditorium, Atlantic City, N. J.
- Car Service Division.**—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.
- AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.**—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, October 21-23, 1930, Brown Hotel, Louisville, Ky. Exhibit by Bridge and Building Supply Men's Association.
- AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.**—A. W. Large, Gen. Agt., C. R. I. & P. Ry., Chicago, Ill. Annual meeting, June 18-20, Hotel Duluth, Duluth, Minn.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—Works in co-operation with the American Railway Association. Division IV.—E. H. Fritch, 431 South Dearborn St., Chicago. Exhibit by National Railway Appliances Association.
- AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.**—Miss Martha C. Moore, Frisco Employees' Magazine, St. Louis, Mo. Next meeting, May, 1930, Kansas City, Mo.
- AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.**—G. G. Macina, C. M., St. P. & F. R. R., 11402 Calumet Ave., Chicago. Annual convention, September 10-12, 1930, Hotel Sherman, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Acting Secretary: H. W. Leighton, Harry W. Leighton Co., 565 W. Washington St., Chicago.
- AMERICAN SHORT LINE RAILROAD ASSOCIATION.**—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS.**—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Paul D. Mallay, John-Manville Corp., 292 Madison Ave., New York.



## Traffic

The Chicago, Milwaukee, St. Paul & Pacific, on March 30, added another one-hr. and 45-min. train in each direction between Chicago and Milwaukee, Wis. It leaves Chicago at 10:30 p.m. and arrives in Milwaukee at 12:15 a.m., while returning, it leaves at 11:45 a.m. and arrives in Chicago at 1:30 p.m.

Two special trains, carrying more than 7,700 bales of cotton, were shipped from Memphis, Tenn., on March 30, to the Cannon Mills Company plants in Kannapolis, Concord and China Grove, N. C. The trains were moved by the St. Louis-San Francisco from Memphis to Birmingham, Ala., and by the Southern from Birmingham to destination.

L. A. Nixon, editor of Travel Trade, announces that there has been incorporated at Albany, N. Y., a National Association of Travel agencies which plans to insure hotels and sight-seeing companies against losses in doing business with concerns which operate all-expense tours. Travel agencies in Philadelphia, Washington and Boston are co-operating. Mr. Nixon is the executive secretary; office 1265 Broadway, New York City.

The Marion Railway, headquarters at Marion, N. Y., has petitioned the State Public Service Commission for authority to discontinue operation of its mixed passenger train service alleging that the cost of the service is greater than the revenue received from it. This road is ten miles long from Newark, N. Y., on the main line of the New York Central, northward to Marion, Wayne County, and according to the Official Guide runs two trains each way daily, except Sunday.

The Northern Pacific has completed arrangements with the Canadian Pacific under which passenger traffic will be interchanged between those two lines at Winnipeg, Man., at the same fares which now apply for tickets routed by way of the Minneapolis, St. Paul & Sault Ste. Marie from St. Paul to Emerson and thence by way of the Canadian Pacific. The new plan will eliminate extra charges for one-way and round-trip passengers which heretofore have been assessed on summer and all-year excursion tickets.

The following officers were elected by the Traffic Club of Chicago on March 25 for the ensuing year: President, C. T. Bradford, manager of the traffic department of the International Harvester Company; first vice-president, J. H. Mangold, general freight agent of the Elgin, Joliet & Eastern; second vice-president, H. A. Palmer, editor and manager of the Traffic World; third vice-president, W. D. Beck, district manager of the Car Service division of the American Railway Association; secretary, R. W. Campbell, manager of the traffic department of the Butler Paper Corporations, and treasurer, J. H. Howard, manager of the Western Weighing and Inspection Bureau.

**AMERICAN WOOD PRESERVERS' ASSOCIATION.**—H. L. Dawson, 1104 Chandler Building, Washington, D. C. Next meeting, January 27-29, 1931, Philadelphia, Pa.

**ASSOCIATION OF RAILWAY CLAIM AGENTS.**—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, May 21-23, 1930, Richmond, Va.

**ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.**—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Semi-annual meeting, June 23, 1930, Hotel Dennis, Atlantic City, N. J. Annual convention, October 21-24, 1930, Hotel Sherman, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

**ASSOCIATION OF RAILWAY EXECUTIVES.**—Stanley J. Strong, Transportation Building, Washington, D. C.

**ASSOCIATION OF RAILWAY SUPPLY MEN.**—J. W. Fogg, MacLean-Fogg Lock Nut Co., 2649 N. Kildare Ave., Chicago. Meets with International Railway General Foremen's Association.

**BOILERMAKERS' SUPPLY MEN'S ASSOCIATION.**—Frank C. Hasse, Oxweld R. R. Service Company, 230 N. Michigan Ave., Chicago. Meets with Master Boiler Makers' Association.

**BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.**—W. H. Lawrence, Johns-Manville Corp., 41st St. and Madison Ave., New York. Meets with American Railway Bridge and Building Association.

**CANADIAN RAILWAY CLUB.**—C. R. Crook, 129 Charron St., Montreal, Que. Regular meetings, 2nd Monday in each month, except June, July and August, Windsor Hotel, Montreal, Que.

**CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—G. K. Oliver, Chicago & Alton, 3001 W. 39th Place, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

**CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, second Monday of each month, except July, August and September, Room 299, 610 So. Main St., Los Angeles.

**CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.**—F. G. Wiegman, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, American Hotel Annex, 6th and Market St., St. Louis, Mo.

**CENTRAL RAILWAY CLUB OF BUFFALO.**—W. H. Newman (President), New York Central Railroad, Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.

**CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—(See Master Car Builders' and Supervisors' Association.)

**CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 453 E. 6th St., Cincinnati, Ohio. Meetings 2nd Tuesday in February, May, September and November.

**CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual meeting, September 23-25, 1930, Hotel Morrison, Chicago. Exhibit of International Railroad Master Blacksmiths' Supply Men's Association.

**INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—J. H. Jones, Crucible Steel Company of America, 650 Washington Blvd., Chicago. Meets with International Railroad Master Blacksmiths' Association.

**INTERNATIONAL RAILWAY CONGRESS.**—Madrid Spain, May 5-15, 1930.

**INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—C. T. Winkless, Room 700, La Salle Street Station, Chicago. Next meeting, May 6-9, 1930, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.

**INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabasha St., Winona, Minn. Annual Convention, September 16-19, 1930, Hotel Sherman, Chicago.

**INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—L. R. Fyle, Locomotive Firebox Co., 310 So. Michigan Ave., Chicago. Meets with International Railway Fuel Association.

**MASTER BOILER MAKERS' ASSOCIATION.**—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Annual meeting, May 20-23, 1930, William Penn Hotel, Pittsburgh, Pa. Exhibit by Boiler Makers' Supply Men's Association.

**MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.**—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago. Next convention August 26-28, 1930, Brook Cadillac Hotel, Detroit. Exhibit by Supply Men's Association.

**NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 270

Madison Ave., New York. Annual Convention, November 12-15, 1930, Charleston, S. C.

**NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.**—Roy. M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo. Annual Convention, April 29-May 1, 1930, Hotel Peabody, Memphis, Tenn.

**NATIONAL RAILWAY APPLIANCE ASSOCIATION.**—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

**NATIONAL SAFETY COUNCIL.**—Steam Railroad Section: W. A. Booth, Can. Nat. Rys., Montreal, Que., Can. Annual Congress, September 29-October 4, William Penn and Fort Pitt Hotels, Pittsburgh, Pa.

**NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

**NEW YORK RAILROAD CLUB.**—E. Sumner (President), Asst. to Gen. Supt. M. P. Penna. R. R., Philadelphia, Pa. Regular meetings, 3rd Friday in month, except June, July and August.

**PACIFIC RAILWAY CLUB.**—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.

**RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—E. R. Woodson, 1124 Woodward Building, Washington, D. C. Annual convention, April 30-May 2, 1930, Hotel Roosevelt, New Orleans.

**RAILWAY BUSINESS ASSOCIATION.**—Frank W. Nuxon, 1112 Shoreham Building, Washington, D. C. Next meeting, November, 1930, Commodore Hotel, New York, N. Y.

**RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.**—(See Master Car Builders' and Supervisors' Association.)

**RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

**RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.

**RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.**—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

**RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Next meeting, October 21-23, 1930.

**RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, American Railway Association.

**RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division 1.

**RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa. Next meeting, June 18-20, 1930, Hotel Cleveland, Cleveland, Ohio.

**ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Exhibit by Track Supply Association. Next meeting, September 16-18, 1930, Hotel Stevens, Chicago.

**ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.

**SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

**SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, June, September and November, Ansley Hotel, Atlanta.

**SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—R. G. Parks, A. B. & C. Ry., Atlanta, Ga. Next meeting, July 17, 1930, Mobile, Ala.

**SUPPLY MEN'S ASSOCIATION.**—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.

**SUPPLY MEN'S ASSOCIATION.**—Bradley S. Johnson, W. H. Miner, Inc., 667 The Rookery Building, Chicago. Meets with Master Car Builders' and Supervisors' Association.

**TRACK SUPPLY ASSOCIATION.**—L. C. Rvar, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago. Meets with Roadmasters' and Maintenance of Way Association.

**TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, 1177 East 98th St., Cleveland, O. Annual meeting, September 23-26, 1930, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

**WESTERN RAILWAY CLUB.**—W. J. Dickinson, 343 So. Dearborn St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

The Chain Store Traffic League has been formed with headquarters at the office of the Traffic Club of New York, Fifty-fifth street and Seventh avenue, to promote the interests of its members and to unite on traffic subjects of common interest. Spencer E. Hughes, of the McLellan Stores Company, 370 Seventh avenue, New York, is the secretary-treasurer and any representative of a chain store company is invited to join the movement. Other interests represented in the list of officers are W. T. Grant Company, J. C. Penney Company, Schulte United, F. W. Woolworth Company, J. J. Newberry & Company.

#### "The Sportsman"

At Richmond, Va., on March 25, over 16,000 visitors passed through the exhibition train of the Chesapeake & Ohio, which the company has been showing at cities and towns along the line preparatory to the installation on March 30 of "The Sportsman"—new through express train between Old Point Comfort, Va., and Detroit, Mich. Similar crowds were entertained at other places, and altogether in a trip of 11 days, over 100,000 persons inspected the train. At some of the way stations, the allotted time was insufficient for the crowd and hundreds were left disappointed when the train departed.

#### Nine-Foot Channel for Upper Mississippi Urged

Senator Schall and Representative Nolan, of Minnesota, have introduced in Congress identical bills to authorize a project for improving the channel of the upper Mississippi river between the Illinois river and Minneapolis to a depth of 9 feet and to widths suitable for long-haul common-carrier service. Members of the House from Iowa and Minnesota appeared at a hearing before the House committee on rivers and harbors on March 27 to urge that such authorization be included in the omnibus rivers-and-harbors bill which is to be reported shortly by the committee.

#### Grade Crossing Accidents

Complete reports for the year 1929 filed by the railroads with the Interstate Commerce Commission show that there was a reduction, compared with the preceding year, of 3.2 per cent in the number of persons who lost their lives as a result of accidents at highway grade crossings in that twelve-month; 2,485 compared with 2,568 in 1928. There was an increase of 13 per cent in the number of fatalities on highways due to motor car operation. Persons injured at railroad crossings in 1929 totaled 6,804 compared with 6,666, or an increase of 138.

#### T A T Planes Show Increase

The Transcontinental Air Transport reports a decided increase in coast-to-coast passenger traffic—Pennsylvania Railroad, T. A. T. Lines, Atchison, Topeka & Santa Fe Railroad—and east-bound and west-bound travel are about equal. Much of this travel is for busi-

ness, as distinguished from pleasure. Transcontinental Air Transport and Maddux Air Lines are now operated as one system, and for the first eight weeks of this year the total number of passengers carried by both was 6,793. Much of the increase consisted of trips between Eastern termini and Indianapolis, St. Louis, Kansas City and Wichita, and shorter trips between the cities named. Since January 14, when reduced fares went into effect, additional services have been put in operation, including round trips daily between Columbus, Ohio and St. Louis, Mo., and between St. Louis and Wichita, Kan.

#### Youngstown Coal Rate Disapproved

The Interstate Commerce Commission has issued a report finding not justified a rate of \$1.02 per ton proposed by the Pennsylvania and the Pittsburgh & Lake Erie on ex-river bituminous coal from Colona and Conway, Pa., to Youngstown, Ohio, for which they had filed tariffs in accordance with an understanding reached when the commission denied an application of the Pittsburgh, Lisbon & Western for authority to build a new line to serve this coal movement that the roads would establish reasonable rates. The commission had suspended the tariffs until December 15, and the respondents had voluntarily postponed the effective date until May 1. The commission has now ordered the schedules cancelled without prejudice to the filing of new ones in conformity with the view, expressed in the report, that the rate should not exceed 77 cents.

#### Associated Traffic Clubs

The program of the eighth annual meeting of the Associated Traffic Clubs of America at Cincinnati, Ohio, on April 24 and 25, will include the consideration of railroad valuation and political rate making, in addition to committee reports and addresses by prominent men. Hon. E. I. Lewis, of the Interstate Commerce Commission, and W. R. Cole, president of the Louisville & Nashville, will speak on railroad valuation, and C. E. Cotterill, Interstate Commerce counselor, at Atlanta, Ga., will speak on political rate making, while E. S. Barney, secretary and general passenger agent of the Hudson River Day Line, will speak on the functions of a traffic club. In addition, C. W. Gallo-way, vice-president of the Baltimore & Ohio, T. R. Dahl, secretary of the White Motor Company, and secretary and vice-president of the White Company, and General W. W. Atterbury, president of the Pennsylvania, will speak at the transportation dinner to be held on the evening of April 24.

#### Pennsylvania Reduces Ferry Charges

The Pennsylvania, effective May 1, will reduce its rate for the transportation of automobiles, trucks and wagons across the Hudson River, between Exchange Place, Jersey City, N. J., and

Cortlandt street, New York, the new rates being substantially the same as those in the Holland Tunnel. Small automobiles will be carried for 25 cents, larger ones 50 cents (the latter rate being the same as that for all automobiles through the Holland Tunnel). For a motor coach, including operator and occupants, one dollar. Automobile tickets in packages of 50 will be sold for ten per cent below the individual ticket rate.

Horse-drawn business vehicles will be taken at rates from 15 cents to 80 cents, varying with the length of the vehicles and the load. Motor trucks are also rated according to capacity, one or two tons, either empty or loaded, will be taken for 25 cents; two tons to five tons, 50 cents; five tons to ten tons, 75 cents; over ten tons, one dollar. These rates include an operator and a helper.

#### Quicker Time to Coast

Four more train schedules between Chicago and the Northwest Pacific Coast will be cut on March 30 when the Chicago & North Western-Union Pacific, the Chicago, Milwaukee, St. Paul & Pacific, the Chicago, Burlington & Quincy-Great Northern and the Chicago, Burlington & Quincy-Northern Pacific will shorten the running time of four trains from 63 hrs. to 61 hrs. 45 min. The Portland Limited of the North Western and Union Pacific will leave Chicago at 9:45 p.m. instead of 8:30 p.m. and will arrive in Portland at 9:30 a.m. the third morning and Seattle at 5:00 p.m. the third day as at present. The Milwaukee's Olympian will leave Chicago at 10:15 p.m. instead of 9 p.m. and will arrive in Seattle at 10 a.m. as at present. The Empire Builder of the Burlington and Great Northern will leave Chicago at 10:15 p.m. instead of 9 p.m. and will arrive in Seattle and Portland at 10 a.m. as at present. One hour of the saving in time will be made up between Chicago and St. Paul while the layover in St. Paul will be reduced from 30 min. to 15 min. The schedule west of St. Paul will not be changed. The North Coast Limited of the Chicago, Burlington & Quincy-Northern Pacific will leave Chicago at 10 p.m. instead of 9 p.m. and will arrive in Portland and Seattle at 10 a.m. as at present.

#### Great Lakes Shippers' Board

Business in the territory of the Great Lakes Regional Advisory Board during the second quarter of 1930 will come within 10.8 per cent of equalling the volume of business of the same period last year, according to commodity committee reports presented at the seventh annual meeting of the board at Detroit, Mich., on March 26. The Automobile committee reported that automobile shipping for the second quarter of this year will show a decrease of 18.8 per cent compared with the same period of 1929, when production reached an all-time record. Iron and steel shipments, the volume of which is greatly dependent upon the automobile requirements for steel, anticipate a reduction of 10



per cent. Grain and flour movement from primary markets at Buffalo and Toledo are expected slightly to exceed the movements of a year ago. Increases are also expected in hay, straw, fresh vegetables, gravel, sand, stone, salt, petroleum, cement, brick, lime, plaster, agricultural implements, heavy machinery, fertilizers and canned foods.

Fred M. Renshaw, traffic commissioner for the Buffalo Chamber of Commerce, was re-elected president and John W. Montigney, traffic manager for the Cleveland Tractor Company, vice-president Frank H. Baer, traffic commissioner for the Cleveland Chamber of Commerce, and general secretary of the Board for the seven years of its existence, will enter upon his eighth term as general secretary.

### Wabash Poultry Car

A total of 4,630 persons or an average of 257 at each of the 18 stops made, was the attendance record of a poultry demonstration car which the Wabash operated over its lines in Missouri in February. A feature of each meeting was a Missouri-type brooder house erected by a local lumber dealer near the place where the car was spotted in each town. Each house was equipped with a brooder stove by a local hardware dealer. These served as demonstrations of correct chick housing equipment. A total of 84 local merchants published special advertising in connection with the meetings.

As a follow-up to these meetings, which covered only the raising of chicks, local merchants bought 15,700 complete sets of illustrated letters, six to a set, covering the important points of the method and mailed them to farmers in their trade territories. Plans have been made to hold two farm demonstration meetings at each stop, when the chicks are eight to ten weeks old, to show the results to date. The car will then make another trip over the same route in September, featuring on that occasion the feeding and housing of the flocks for winter egg production.

### The Education of Senator Mc Kellar

The Interstate Commerce Commission on March 29 issued a third notice in the series necessitated by its effort mildly to remind Senator Mc Kellar, of Tennessee, and possibly others, that it does not desire to be influenced by argumentative letters, seeking to advise it how to decide a particular rate case after hearings have been closed.

On March 20 the commission made public such a letter received from Senator Mc Kellar, protesting against an increase in rates on road-building materials which he feared might result, within the state of Tennessee, from the decision of the commission in a case involving a general revision of such rates in Mississippi Valley territory, including both increases and reductions. At the same time it announced that the letter would be made part of the record, which had been closed, and that parties of record might have

ten days in which to file replies. By another notice on March 25 the parties were informed that the Senator had asked and been granted leave to supplement his letter with a brief and that those who desired might have 15 days in which to reply to the brief. Now the commission has received from certain parties inquiries as to whether they could not postpone the filing of replies until the time fixed for the replies to the brief and thereby obviate the necessity of preparing and filing separate documents. On March 29 the commission issued a notice postponing the time for replies to the letter until the date for the replies to the brief.

### Faster Time in Summer Time Tables

The Pennsylvania, with the publication of its next time table on April 27, will place a number of through trains on shorter schedules. The reduction of two trains between New York and St. Louis to 23 hours, has already been noticed. The Manhattan Limited, No. 22, Chicago to New York, will be made a 20-hour train, leaving Chicago at 11 a.m. A new train, the New Yorker, will leave Chicago at 10 a.m., arriving in New York at 8:25 a.m. The westbound Broadway Limited and the Pennsylvania Limited will start an hour earlier, to correspond with the habits of passengers who use daylight saving time. The Red Knight, No. 67, will be re-named the Rainbow and will leave New York at 10:45 p.m., one hour earlier than at the present.

The Metropolitan, westbound, will leave New York as now at 9 a.m. but will reach Chicago one hour earlier than at present. The Steel City Express, No. 124, Chicago to Pittsburgh, will leave at 11 p.m., one hour earlier than at present, and arrive at Pittsburgh one hour and 40 minutes earlier.

### NEW YORK CENTRAL

The New York Central is to run the Knickerbocker from St. Louis to New York in 23 hours. This run is 1156 miles long, making the average speed 50.7 miles an hour; leave St. Louis at noon, arrive in New York at noon.

The Southwestern Limited, leaving New York now at 5:10 p.m. will leave at 6:20 and will arrive in St. Louis at 5:15, making the run about one hour quicker than at present.

All trains will continue to be run on standard time, but to accommodate daylight savers, the Advance Century, leaving New York at 2 p.m. will start at 1:45 and the eastbound Advance Century will leave Chicago at 11:40 a.m., twenty minutes earlier than at present. The Commodore Vanderbilt will leave Chicago at 2 p.m. instead of 3 o'clock.

The Empire State Express, a notable speeder for almost 40 years, now running through from New York to Buffalo, 436 miles, in eight hours, 45 minutes, is to go through in eight hours, 30 minutes, or at the rate of 51.43 miles an hour. This train makes six stops. The time Eastbound, leaving Buffalo at 1 p.m., is the same, 8½ hours.

## Equipment and Supplies

### Locomotives

THE PEORIA & PEKIN UNION is inquiring for two eight-wheel switching locomotives.

THE LOUISVILLE & NASHVILLE has ordered six 4-8-2 type locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of February 8.

THE CENTRAL OF NEW JERSEY has ordered five 4-6-2 type passenger locomotives and five eight-wheel switching locomotives from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of January 25.

### Illinois Central to Buy \$9,000,000 Worth of Equipment

The Illinois Central has authorized the purchase of approximately \$9,000,000 worth of locomotives, freight and passenger cars, and will ask for bids within the next few weeks. The equipment is as follows:

- 9 oil-electric locomotives
- 1,000 automobile furniture cars
- 200 flat cars
- 500 drop end mill type gondola cars
- 500 hopper cars
- 15 mail, baggage and express cars
- 15 coaches
- 10 electric suburban cars
- 10 trailers
- 65 caboose cars
- 2 rail motor cars
- 4 dining cars

### Freight Cars

ILLINOIS CENTRAL.—See item under locomotives.

THE DALLAS POWER & LIGHT COMPANY is inquiring for one transformer car.

THE PACIFIC FRUIT EXPRESS is inquiring for 500 steel underframes for refrigerator cars.

THE L. C. L. CORPORATION is inquiring for 100 drop side container cars of 50 tons' capacity.

THE STANDARD OIL COMPANY OF NEW JERSEY is inquiring for four tank cars of 4,500 gal. capacity.

THE VIRGINIAN is asking for prices on the repair of 500 all-steel hopper cars of 55 tons' capacity.

THE MINNEAPOLIS & ST. LOUIS has been given permission by the Federal Court to purchase 500 box cars and some gas-electric rail motor cars.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered two 20-yd. air dump cars from the Western Wheeled Scraper Company.

THE FREEDOM OIL COMPANY has ordered two tank cars with three compartments from the General American Tank Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of March 22.

## Passenger Cars

ILLINOIS CENTRAL.—See item under locomotives.

THE READING has ordered 61 multiple unit passenger cars, seven passenger and baggage cars and two passenger, baggage and mail cars from the Bethlehem Steel Company. Inquiry for this equipment was reported in the *Railway Age* of February 22. The road has also placed contracts for electric traction equipment totaling about \$2,000,000 with the General Electric Company, the Westinghouse Electric & Manufacturing Company and the American Brown Boveri Electric Corporation.

## Iron and Steel

THE BALTIMORE & OHIO has received bids on 150 tons of steel for a bridge at Forest avenue, Staten Island, N. Y.

THE NEW YORK CENTRAL has received bids on 200 tons of steel for a grade crossing at Marcy, N. Y., and on 180 tons for grade crossing work at Pittsford, N. Y.

THE PENNSYLVANIA has received bids on 3,850 tons of steel to be used in connection with its electrification work between West Philadelphia, Pa., Trenton and New York.

THE BOSTON & MAINE has ordered 1,685 tons of steel for a bridge at Hooksett, N. H., from the Bethlehem Steel Company. Orders have also been placed for 130 tons of steel with the Shoemaker Bridge Company; for 100 tons with the Boston Bridge Company and for 200 tons with the Phoenix Bridge Company, for bridges in New York state.

## Machinery and Tools

THE SOUTHERN PACIFIC is inquiring for a 600-ton wheel press, a draw cut shaper, a 24-in. engine lathe and an 18-in. engine lathe.

## Signaling

THE CANADIAN PACIFIC has ordered from the Union Switch & Signal Company 40 searchlight signals and other material, preparatory to installing automatic block signals on its line between Leaside, Ont., and Agincourt.

THE ILLINOIS TERMINAL has ordered from the Union Switch & Signal Company material for an automatic interlocking at the crossing of the Terminal with the Alton & Southern, near Granite City, Ill. The home signals will be semaphore, style B, and the distant signals will be color-light.

## Supply Trade

Leslie C. Whitney has joined the mill organization of the Copperweld Steel Company, Glassport, Pa., as chief metallurgist.

The Chicago Pneumatic Tool Company, New York, has opened a branch office in the Merchants & Manufacturers building, Houston, Tex.

The Lundie Engineering Corporation, on April 1, moved its Chicago office from 166 West Jackson boulevard to the Buckingham building, 59 East Van Buren street.

The Track Specialties Company, Inc., has moved its executive office from 6 Morris street to the General Motors building, 1775 Broadway, New York.

A. H. Weston has resigned as manager, Reading specialty division of the American Chain Company and is now associated with the Reliance Manufacturing Company, Massillon, Ohio. Mr. Weston's headquarters will be at 258 Broadway, New York City.

Morley S. Sloman, representative of the Sullivan Machinery Company, with headquarters at Pittsburgh, Pa., has been promoted to manager of the Huntington, W. Va., branch office to succeed John S. Walker, Jr., who has retired to engage in banking in Huntington.

The Reed Air Filter Company, Inc., the Midwest Manufacturing Company, Inc. and the National Air Filter Company, Inc., the latter formerly a holding company for the three concerns, were consolidated on April 1, under the name of the American Air Filter Company, Inc., with headquarters at Louisville, Ky.

The Lincoln Electric Company, Cleveland, Ohio, has opened three new offices as follows: J. D. Luter is in charge of a new office at 338 Barnard street, Saginaw, Mich.; D. H. Carver is in charge at 225 E. Columbia street, Ft. Wayne, Ind., and E. D. Anderson is in charge at Oil City, Pa.

L. A. Gerber, former western district sales manager of the United States Chain & Forging Company, Pittsburgh, Pa., has been promoted to general sales manager; W. L. Reilly, for many years a member of the headquarters staff, has been promoted to assistant general sales manager; L. K. Robinson, former head of New England sales activities, has been promoted to eastern district manager with headquarters at New York and Harley Morris, former salesman in the western division has been promoted to western district manager with headquarters at Chicago.

Approximately 900 of the 6,000 voluntary participants in the Inland Steel Company's employees' savings and profit sharing pension fund received 16,102 shares of the company's common stock on April 1. The plan under which

more than three fourths of the Inland employees are enrolled, provides that each participant contribute five per cent of his salary but not over \$300 a year, while the company's share is five per cent of net earnings before payment of any dividends. Inland common stock, purchased with these funds, is distributed to the employees at the end of five years' participation.

Richard B. Hynes, assistant secretary and assistant treasurer of the Atlas Portland Cement Company, has been appointed secretary of the Universal Atlas Cement Company, with headquarters in Chicago. T. E. O'Connor, western credit manager of the Atlas Portland Cement Company, has been appointed treasurer of the Universal Atlas Cement Company, with headquarters in New York. A. J. Joyce, assistant credit manager of the Universal Portland Cement Company, has been appointed assistant treasurer of the Universal Atlas Cement Company, with headquarters at Chicago. E. M. Johnson, eastern credit manager of the Universal Portland Cement Company, has been appointed assistant treasurer of the Universal Atlas Cement Company, with headquarters at Pittsburgh, Pa., J. L. Medler, assistant treasurer of the Atlas Portland Cement Company, has been appointed assistant treasurer of the Universal Atlas Cement Company, with headquarters at New York.

THE EASTERN BENGAL has contracted with Metropolitan Vickers, Limited, London, for two electric interlocking plants, GRS, Model 2, for Dum Dum Junction, India. One machine will have 48 levers and the other 36. The order includes power equipment, illuminated diagrams and other material; 53 signals, type SA, 38 switch machines, etc.

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A Boston & Maine 2-10-2 Type Locomotive with 100 Refrigerator Cars at East Gardner, Mass.



## Construction

**ABILENE & SOUTHERN.**—Examiner R. R. Molster of the Interstate Commerce Commission, in a proposed report, has recommended that the commission grant this company's application for a certificate for the construction of an extension from Ballinger to San Angelo, Tex., 39 miles, but only on condition that the Santa Fe fails to offer a proper agreement for the use of its line between those points under trackage rights on fair and reasonable terms.

**ATCHISON, TOPEKA & SANTA FE.**—A contract has been let to the Sharp & Fellows Contracting Company, Los Angeles, Cal., for the construction of a second main track between Winslow, Ariz., and Joseph City, 23 miles. This work will include grading, lengthening of concrete piers for two bridges and construction of culverts.

**CHESAPEAKE & OHIO.**—Bids were received on March 31 for the extension of an existing center siding at Meadow Creek, W. Va., at an estimated cost of \$49,000. This company has also authorized the construction of a new center siding to hold 150 cars at Omega Road, Ohio, at a cost of approximately \$118,500.

**CHICAGO & NORTH WESTERN.**—An ordinance has been introduced in the Chicago city council providing for the use of certain streets and alleys in the area between Halsted street, Milwaukee avenue and the Galena division at Chicago for the construction by this company of a new express terminal building at a total cost of approximately \$1,400,000.

**CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.**—A contract for the construction of a reinforced concrete and steel automobile unloading dock and house at Green Bay, Wis., has been let to Peppard & Fulton, Minneapolis, Minn. The dock will be double-decked and the enclosed portion of the structure will have outside dimensions of 100 ft. by 300 ft., the entire project involving an expenditure of about \$250,000.

**CINCINNATI UNION TERMINAL.**—A contract has been awarded to the Mt. Vernon Bridge Company, Mt. Vernon, Ohio, for furnishing and erecting the structural steel for the Cincinnati, New Orleans & Texas Pacific elevated freight line into the new union terminal at Cincinnati, Ohio, at a cost of \$120,000.

**CITY OF LITTLE ROCK.**—Bids will be opened on April 15 for the construction of a reinforced concrete viaduct over the tracks of the Chicago, Rock Island & Pacific, the Missouri Pacific, and Rose Creek at Little Rock, Ark. The construction involves the placing of 4,650 cu. yd. of concrete and the driving of 5,080 linear feet of concrete piling.

**DELAWARE & HUDSON.**—A contract has been awarded to Spellman & Oliver, Chateaugay, N. Y., for the elimination

of a grade crossing at Valcour, N. Y. The amount involved is approximately \$90,000.

**ERIE.**—A contract has been awarded to the Hecker-Moon Company, Cleveland, Ohio, for the construction of a two-stall enginehouse, several small yard buildings and the laying of a small amount of additional track at Akron, Ohio. This company has been directed by the Board of Public Utility Commissioners of New Jersey to reconstruct the bridge carrying its track over Van Riper avenue, East Paterson, N. J., so as to provide a minimum clearance between abutments of 30 ft. and a minimum vertical clearance of 14 ft. The work is to be begun by October 1, 1930, and to be completed not later than April 1, 1931.

**GREAT NORTHERN.**—A contract has been awarded to the Burrell Engineering Company, Chicago, for the construction of a 3,000,000-bu. addition to the grain elevator of this company at Superior, Wis., which is operated by A. D. Thomson & Co.

**MISSOURI PACIFIC.**—A contract for the construction of a 2,076,000-bu. addition to this company's grain elevator at St. Louis, Mo., has been awarded to Edwin Ahlskog, Chicago. This addition, which will involve an expenditure of approximately \$700,000, will give the elevator a total capacity of 4,000,000 bu., and will represent an aggregate investment, including track-age facilities and land, of about \$2,700,000. The addition will be constructed of reinforced concrete and steel and will conform in general design with the existing elevator. Work will be started to insure completion by August 1 to accommodate the 1930 wheat crop.

**NATIONAL OF MEXICO.**—This company plans the construction of a railroad extending between Uruapan, Micho., and Zihuatanejo, Gro., an undeveloped port on the Pacific ocean, about 170 miles. The projected line will traverse a rich agricultural region in Michoacan and will tap forests in the mountains of that state and Guerrero. The town and prospective port of Zihuatanejo is situated on a deep bay that is practically landlocked. Iron ore and coal deposits that have never been exploited because of inaccessibility are located near Zihuatanejo. It is expected that the state governments of both Michoacan and Guerrero will bear a portion of the cost of construction.

**NEW YORK, NEW HAVEN & HARTFORD.**—Work has been started by the Tredennick Construction Company, Boston, Mass., on the erection of a 2½-story brick and concrete heating plant for this company at New Haven, Conn. The new plant is located opposite the New Haven passenger station on the site of an old coal pocket replaced several years ago by a coaling plant of more modern design. The heating plant, which will contain four boilers, will furnish heat for the station,

the general offices of the railroad company and other railroad buildings in the vicinity and will replace individual heating plants employing a larger number of boilers, which are now in use. The building and its equipment will cost approximately \$500,000 and will be completed in about 4½ months.

**PENNSYLVANIA.**—Contracts have been awarded to W. F. Trumble & Sons Company, Pittsburgh, Pa., for the extension of this company's produce house at Sixteenth street, Pittsburgh, at a probable cost of \$157,000, and to George W. Rockwell, Sunbury, Pa., for the construction of a bridge over Shamokin creek and necessary track changes south of Sunbury, at an estimated cost of \$100,000.

**ST. LOUIS-SAN FRANCISCO.**—This company has applied to the Interstate Commerce Commission for authority to build and operate an extension of 2.95 miles from Shamrock, Okla., to an oil refinery near Drumright, Okla.

**SOUTHERN PACIFIC.**—This company plans the immediate construction of a brick passenger and freight station at Stockton, Cal., at a cost of about \$200,000.

**TEXAS & PACIFIC.**—Bids will be closed on April 17 for the construction of several buildings in connection with this company's terminal project at Fort Worth, Tex., involving a total expenditure of \$4,000,000. The work to be undertaken at this time includes a 13-story brick and stone reinforced concrete and steel passenger station and office building having outside dimensions of 210 ft. by 60 ft. with a 90 ft. by 60 ft. waiting room with 60 ft. ceiling; a one-story brick outbound warehouse 700 ft. in length to accommodate six tracks and necessary transfer platforms and driveways, and an eight-story brick and reinforced concrete freight station and inbound warehouse having dimensions of 610 ft. by 100 ft. with cold storage facilities for fruits, vegetables and meats. The contemplated project also involves the elevation of tracks and separation of grade at eight street crossings in Fort Worth at a cost of about \$4,000,000.

**TULSA UNION DEPOT COMPANY.**—Bids will be received until April 21, by the chief engineer of the St. Louis-San Francisco, for the construction of a Union Station at Tulsa, Okla., which will be used by that road, the Atchison, Topeka & Santa Fe and the Missouri-Kansas-Texas. The work includes a one and a half story station building with dimensions of 96 ft. by 173 ft., a concourse over the station tracks and a street viaduct. The building will be constructed of reinforced concrete and brick with terra cotta trim and the entire project will involve an expenditure of about \$1,500,000.

**UNION PACIFIC.**—A contract for the construction of a one-story and basement concrete and brick passenger station at Fairbury, Neb., has been awarded to the Brown Engineering Company, Omaha, Neb. This building will represent an expenditure of about \$90,000.

**WABASH.**—The United States Engineer at St. Louis, Mo., will conduct a public hearing on April 10 on the plans of this company for the construction of a new double-track bridge over the Missouri river near St. Charles, Mo., at a cost of about \$3,500,000. The bridge, plans for which are subject to the approval of the war department, will be located about one-half mile downstream from the present bridge at St. Charles. It will include three channel spans each 420 ft. in length, a west approach span 420 ft. long, two east approach spans each 225 ft. long, a west approach viaduct 2,150 ft. long and an east approach viaduct 4,364 ft. long. If plans are approved by the government it is expected that construction will be started during the summer of 1930.

### Illinois Announces 1930 Grade Separation Plans

The Illinois Department of Public Works and the state highway engineer have announced plans for the 1930 program of railroad and highway grade separation in Illinois, which involve the construction of 40 structures at a total cost of \$4,000,000, about \$2,000,000 of which will be borne by the railroads. The 22 projects in Cook County in the Chicago area will require a total expenditure of \$2,678,000. These separations with the highway and railroads involved and the location are as follows:

Dixie highway	B. & O.	Riverdale
Joliet rd.	B. & O.	McCook
Lake street	E. J. & E.	Elgin
Lake street	C. M., St. P. & P.	Ontarioville
Roosevelt rd.	Ind. Harbor	Westchester
Ogden ave.	C., B. & Q. and Ind. Harbor	La Grange
Northwest highway	C. & N. W. and M., St. P. & S. Ste. M.	Des Plaines
Milwaukee ave.	C. & N. W.	Glenview
Washington blvd.	Ind. Harbor	Bellwood
Governors highway	B. & O.	Riverdale
Archer ave. & Kean rd.	C. & J. Elec.	Justice
Skokie rd.	C. & N. W. and C., N. S. & M.	Niles Center
Elgin-Evanston rd.	C. & N. W. and C., N. S. & M.	Niles Center
Elgin-Evanston rd.	C. & N. W.	Des Plaines and Northeast of Des Plaines
Elgin-Evanston rd.	C. M., St. P. & P.	Golf
Higgins rd.	E. J. & E.	Barrington
Governors highway	Mich. Cent.	Matteson
Governors highway	E. J. & E.	Matteson

In the remainder of the state the projects planned are as follows:

Governors highway	Ill. Cent.	Monee
Route 51	E. J. & E.	Freeport
Route 51	Mich. Cent.	Frankfort
Route 1	Southern	Albion
Route 4	St. L., T. & E.	Venice
Route 24	Ill. Term.	Springfield
Route 18	C., B. & Q.	Princeton
Route 40	C. M., St. P. & P.	Mount Carroll
Route 48	Wabash	Taylorville
Route 74	Ill. Cent.	Freeport
Route 78	A., T. & S. F.	Laura
Route 88	A., T. & S. F.	Edelstein
Route 89	A., T. & S. F.	La Rose
Route 108	C., B. & Q.	Litchfield
Route 126	C., B. & Q.	Greenfield
Route 142	Ill. Cent.	Alma
Route 142	C. & E. I.	Kinnmundy
Route 169	C. & E. I.	Findlay

## Railway Finance

**ALTON & EASTERN.—Stock.**—The Interstate Commerce Commission has authorized this company to issue \$592,600 of common stock in lieu of a like amount issued contrary to previous authority.

**ATCHISON, TOPEKA & SANTA FE.—Lease.**—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the Oil Fields & Santa Fe, which it controls by stock ownership and which it has been operating under a lease expiring May 6.

**BOSTON & MAINE.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to issue \$15,000,000 of first mortgage 5 per cent bonds, to provide for additions and betterments and to reimburse the treasury, to be sold to Kidder, Peabody & Co., Lee, Higginson & Co., and Harris Forbes & Co., Inc., at 98 and interest.

**BOSTON & MAINE.—Annual Report.**—The annual report of this company for 1929 shows net income, after interest and other changes, of \$5,993,841 as compared with net income in 1928 of \$6,437,471. Selected items from the income statement follow:

	1929	Increase or Decrease over 1928
<b>RAILWAY OPERATING REVENUES</b>	78,481,438	+2,019,431
Maintenance of way	14,381,312	+1,922,765
Maintenance of equipment	13,997,723	+ 619,255
Transportation	27,004,923	— 648,782
<b>TOTAL OPERATING EXPENSES</b>	59,408,943	+2,105,692
Operating ratio	75.70	+ .76
<b>NET REVENUE FROM OPERATIONS</b>	19,072,496	— 86,261
Railway tax accruals	3,496,364	— 430,084
Railway operating income	15,568,622	+ 349,557
Hire of freight cars—Dr.	2,783,521	+ 422,345
Joint facility rents	368,693	+ 66,683
<b>NET RAILWAY OPERATING INCOME</b>	12,642,198	— 143,102
Non-operating income	1,421,156	— 135,990
<b>GROSS INCOME</b>	14,078,746	— 281,882
Paid for leased roads	1,139,132	.....
Interest on funded debt*	6,464,963	+ 123,137
<b>TOTAL DEDUCTIONS FROM GROSS INCOME</b>	8,084,905	+ 161,748
<b>NET INCOME</b>	5,993,841	— 443,630
Disposition of net income:		
Income applied to sinking funds	168,153	+ 9,827
Dividend appropriations of income	3,264,561	+ 357,231
Surplus for year carried to profit and loss	2,561,126	— 810,688

\* Interest amounting to \$158,749.59 for 1929 and \$147,423.75 accrued on bonds held in sinking funds is included in account "Income Applied to Sinking Funds."

**BRIMSTONE RAILROAD & CANAL COMPANY.—Protest Against Recapture Order.**—This company has filed with the Interstate Commerce Commission a protest against its recent order directing the company to pay \$217,793 to its general railroad contingent fund, or to file a bond for the payment of the amount, on the basis of a tentative report fixing the

amount of its valuation and net railway operating income for the years 1920 to 1925. The company protests that the method and procedure by which the commission has issued an order tentative in form but to become final if not protested and requiring the payment of money "without any legal evidence before it," is illegal and unauthorized. It particularly protests against the order requiring it to file a bond for the amount of a payment fixed by an ex parte order, stating that if the commission has authority to require a bond it can only be required after a final valuation. The point is also made that the excess earnings were not determined, claimed, or sought to be recovered, within the first four months after the close of the respective periods for which computations are made and therefore that the commission is without power to require payment for such periods, even had excess earnings been earned, which is denied. Many detail objections are made to the tentative report, stating that the commission has not given proper consideration to various elements of value and has found as net sums greatly in excess of those actually accrued. The company also takes the position that the commission, without having before it any evidence to the contrary presented in an appropriate proceeding, must accept the returns made by the company.

**CANADIAN PACIFIC.—Stock Split-up.**—Without a dissenting voice, the House of Commons Committee on Railways, Canals and Telegraphs at Ottawa last week reported Bill No. 27, providing for a four-to-one split in Canadian Pacific stock, following a statement from Edward W. Beatty, president of the company. In this statement Mr. Beatty gave his reasons for the introduction of the bill, and restock outstanding. The preference stock issue and holdings, to enable the committee to form an opinion of the wisdom of the amendments which the directors of the C. P. R. desired to have adopted. "The charter of the company," said Mr. Beatty, "provides for two classes of stock—ordinary and preferred. The former was fixed at \$25,000,000 divided into shares of \$100 each, and the latter by an amendment to the original charter to an amount not exceeding one-half of the aggregate amount of the ordinary stock outstanding. The preference stock has preference only in respect of non-cumulative dividends at the rate of 4 per cent per annum.

"In the earlier days the holdings of the company's stock by Canadians were very limited. As late as 1907 only 19 per cent of the ordinary stock was held in Canada, increasing slowly, until in 1929 it was 18.07 per cent. In the same period British holdings of ordinary stock declined from 62.94 per cent. to 42.90 per cent, and United States holdings rose from 12.57 per cent to 32.68 per cent.

"The tendency in recent years has been,



even with Canadian holdings, that while the holdings have increased, the number of shareholders has not increased proportionately. This we put down to the high value of the shares, and we now desire by this reduction in par value to bring them within investment range of a greater number of investors.

"Under modern conditions, \$25 shares are more popular with the ordinary investor than \$100 shares, particularly in the case of this company, when the market value is about double the par value. Other corporations in Canada and the United States have adopted the same policy, and for the same reasons, and the result has been a large increase in the number of their shareholders."

**CHICAGO & EASTERN ILLINOIS.—Annual Report.**—The annual report of this company for 1929 shows net income after interest and other charges of \$478,968, as compared with net income of \$400,208 in 1928. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
Average mileage operated	946.24	945.13	+ 1.11
RAILWAY OPERATING REVENUES	\$25,398,275	\$24,893,573	+ \$504,702
Maintenance of way ....	3,011,916	2,880,886	+ 131,030
Maintenance of equip't..	5,356,770	4,996,568	+ 360,201
Transport'n..	9,360,420	9,567,084	- 206,664
TOTAL OPERATING EXPENSES	19,693,097	19,420,758	+ 272,339
Operating ratio .....	77.53	78.02	- .49
NET REVENUE FROM OPERATIONS	5,705,178	5,472,815	+ 232,363
Railway tax accruals ...	1,670,000	1,583,000	+ 87,000
Railway operating income	4,026,307	3,882,054	+ 144,253
Equipment rents—Dr. ...	1,186,815	1,057,528	+ 129,286
Joint facility rents—Dr. .	630,460	623,851	+ 6,609
NET RAILWAY OPERATING INCOME	2,209,033	2,200,674	+ 8,358
Non-operating income ....	617,058	554,735	+ 62,324
GROSS INCOME	2,826,091	2,755,409	+ 70,682
Rent for leased roads	155,535	160,543	- 5,009
Interest on funded debt	2,126,354	2,124,455	+ 1,898
TOTAL DEDUCTIONS FROM GROSS INCOME	2,347,123	2,355,200	- 8,078
NET INCOME.	478,968	400,208	+ 78,760

**CHICAGO GREAT WESTERN. — Notes.** — This company has applied to the Interstate Commerce Commission for authority to issue 12 notes aggregating \$1,291,200, maturing quarterly until April 10, 1933, to the Lima Locomotive Works, Inc., in part payment for 15 freight locomotives.

**CHICAGO, INDIANAPOLIS & LOUISVILLE.—Annual Report.**—The annual report of this company for 1929 shows net income after interest and other charges of \$1,308,411, as compared with net income in 1928 of \$1,372,620. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
Average mileage operated	650.34	648.09	+ 2.25

RAILWAY OPERATING REVENUES	\$18,078,394	\$18,381,006	— \$302,394
Maintenance of way ....	1,822,785	1,789,592	+ 33,193
Maintenance of equip't..	3,692,141	3,663,863	+ 28,278
Transport'n..	6,319,514	6,655,512	- 335,998
TOTAL OPERATING EXPENSES	12,908,741	13,185,808	- 277,067
Operating ratio .....	71.40	71.73	- .33
NET REVENUE FROM OPERATIONS	5,169,653	5,195,198	- 25,545
Railway tax accruals ...	1,075,290	1,065,256	+ 10,034
Railway operating income	4,092,986	4,129,322	- 36,336
Hire of freight cars—Dr. ...	764,695	752,207	+ 12,488
Joint facility rents—Dr. .	718,754	679,121	+ 39,633
NET RAILWAY OPERATING INCOME	2,603,564	2,696,936	- 93,372
Non-operating income ....	130,359	114,662	+ 15,691
GROSS INCOME	2,733,923	2,811,598	- 77,675
Rent for leased roads	40,342	37,243	+ 3,099
Interest on funded debt	1,369,050	1,374,033	- 4,983
TOTAL DEDUCTIONS FROM GROSS INCOME	1,425,513	1,438,977	- 13,464
NET INCOME.	1,308,411	1,372,620	- 64,209

**CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Bonds.**—This company has applied to the Interstate Commerce Commission for authority to issue \$15,000,000 of general mortgage 4¾ per cent bonds, to be sold to Kuhn, Loeb & Co., and the National City Company at 98 and interest, the proceeds to be used to reimburse the treasury and to provide for additions and betterments and part of the cost of new equipment.

**CHICAGO, ROCK ISLAND & PACIFIC.—Preliminary Report.**—The preliminary report of this company for 1929 shows net income, after interest and other charges, of \$14,007,321, as compared with net income in 1928 of \$13,167,696. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
RAILWAY OPERATING REVENUES	147,721,562	141,232,604	+ 6,488,958
Maintenance of way ....	20,250,848	19,173,524	+ 1,077,325
Maintenance of equip't..	27,294,256	26,598,095	+ 696,160
Transport'n..	52,145,967	50,233,183	+ 1,912,784
TOTAL OPERATING EXPENSES	108,555,385	103,266,340	+ 5,289,045
NET REVENUE FROM OPERATIONS	39,166,177	37,966,264	+ 1,199,914
Railway tax accruals ...	8,212,087	8,379,348	- 167,261
Railway operating income	30,921,694	29,513,204	+ 1,408,489
Equipment rents—Dr. ...	4,867,141	3,921,771	+ 945,370
Joint facility rents—Dr. .	1,205,644	1,324,918	- 119,274
NET RAILWAY OPERATING INCOME	24,848,909	24,266,515	+ 582,394
Non-operating income ....	1,282,360	961,921	+ 320,439
GROSS INCOME	26,131,269	25,228,436	+ 902,833
Rent for leased roads	155,203	156,301	- 1,099

NET INCOME.	14,007,321	13,167,696	+ 839,625
Disposition of net income:			
Dividends on 7 per cent preferred stock .....	2,059,547	2,059,547	.....
Dividends on 6 per cent preferred stock .....	1,507,638	1,507,638	.....
Dividends on common stock .....	5,205,060	4,461,480	+ 743,580
Surplus for year carried to profit and loss .....	5,235,076	5,139,031	+ 96,045

**ERIE.—Bonds.**—The Interstate Commerce Commission has authorized this company to issue \$50,000,000 of refunding and improvement mortgage 5 per cent bonds, series of 1930, and to sell the issue at not less than 93.5, which will make the average annual cost approximately 5.385 per cent. The issue will mature in 1975 and will be redeemable at premiums varying from 5 per cent downward after 1967. The proceeds of the issue will be used generally for the reduction of outstanding and maturing obligations, with \$12,996,250 to be applied toward capital expenditures. The company has also been authorized to issue \$29,071,750 of general-lien 4 per cent bonds to be pledged with the trustee of the refunding and improvement mortgage.

**GREAT NORTHERN.—Use of Northern Pacific Facilities Approved.**—On petition of this company for an order by the Interstate Commerce Commission according it the right to use a connecting track owned and operated by the Northern Pacific within the switching limits of Seattle, Wash., the commission has issued a finding that use of a portion of the Northern Pacific lines would be in the public interest and practicable without substantially impairing the Northern Pacific's ability to handle its own business. The record is to be held open for 60 days to enable the carriers to agree upon terms and compensation for such use.

**GULF COAST LINES.—Bonds.**—The Interstate Commerce Commission has authorized the New Orleans, Texas & Mexico to issue \$1,955,000 of first mortgage, 4½ per cent bonds, series D, to be pledged and repledged as collateral security for short term notes.

**LOUISIANA & ARKANSAS.—Bonds.**—A syndicate of ten banks, headed by Dillon, Read & Co., is offering \$13,000,000 of series A, 5 per cent first mortgage bonds of this company at 92, to yield 5.5 per cent. The issue will mature in 1969 and is redeemable at 103; it has been authorized by the Interstate Commerce Commission.

**LOUISIANA RAILWAY & NAVIGATION COMPANY.—Abandonment.**—The Interstate Commerce Commission has authorized this company to abandon, and the Louisiana & Arkansas to abandon the operation of a portion of the Winnfield branch between Winnfield and Aloha, La., 25.38 miles.

**MISSOURI PACIFIC.—Valuation.**—This

company has petitioned the Interstate Commerce Commission to re-open its valuation case for the purpose of receiving additional testimony relating to the original cost of its property. The company has been making an intensive study of its investment accounts which shows an approximate investment as of valuation date, June 30, 1918, of \$361,054,359, as compared with a tentative value of \$238,048,290 stated in the tentative report. The investment figure is also \$73,010,203 more than the cost of reproduction plus present value of lands as shown in the report.

**PENNSYLVANIA.—Use of Facilities by Long Island.**—The Interstate Commerce Commission has issued a finding that the public convenience and necessity require the continued operation by the Long Island, under trackage rights, over the railroad of the Pennsylvania Tunnel and Terminal Railroad between Sunnyside Yard and the Pennsylvania station in New York City, but that the terms of a new agreement dated November 13, 1928, proposed to govern such operation, and providing for an increased rental to be paid by the Long Island, are not just and reasonable. The amount of the rental was vigorously opposed by representatives of the Long Island commuters, who feared that it might be used as the basis for increased commutation fares. The New York Transit Commission had also asked that the Interstate Commerce Commission leave the question of the rental to the judgment of the Transit commission but the federal commission held that the matter was within its jurisdiction. The application for approval of the arrangement was denied without prejudice to the submission of a modified contract and the report, by Division 4 of the commission, stated that the proposed contract would be unreasonable in respect of the inclusion of the entire station in the investment on which the rental was to be based, the inclusion of all operating expenses, maintenance, and taxes connected with the station, the indiscriminate application of the wheelage ratio both to basic values and to expenses, and the employment of 6 per cent as the annual rate of interest on the value of the facilities.

**PENNSYLVANIA RAILROAD.—Annual Report.**—The annual report of this company for 1929 shows net income, after interest and other charges, of \$101,378,513, as compared with net income of \$82,507,613 in 1928. Selected items from the income statement follow:

	1929	1928	Increase or Decrease
Average mileage operated . . . . .	10,578.81	10,533.72	+ 45.09
<b>RAILWAY OPERATING REVENUES</b> 682,702,931		650,567,316	+32,135,615
Maintenance of way . . . . .	87,847,375	85,419,898	+ 2,427,477
Maintenance of equip. . . . .	131,642,781	130,231,307	+ 1,411,474
Transportation . . . . .	235,190,937	227,703,832	+ 7,487,104
<b>TOTAL OPERATING EXPENSES</b> . . . . .	493,150,592	480,171,634	+12,978,958
Operating ratio . . . . .	72.1	73.8	— 1.7
<b>NET REVENUE</b> . . . . .			

<b>INCOME FROM OPERATIONS</b> . . . . .	189,552,339	170,395,682	+19,156,657
Railway tax accruals . . . . .	40,518,596	37,846,357	+ 2,672,238
<b>Railway operating income</b> . . . . .	148,945,017	132,461,323	+16,483,694
Hire of equipment . . . . .			
Dr. . . . .	14,116,524	14,047,210	+ 69,314
Joint facility rents—			
Dr. . . . .	1,688,867	1,116,427	+ 381,740
<b>NET RAILWAY OPERATING INCOME</b> . . . . .	133,139,626	117,297,686	+16,032,640
Non-operating income . . . . .	48,791,500	44,535,659	+ 4,255,841
<b>GROSS INCOME</b> . . . . .	181,931,126	161,833,345	+20,288,482
Rent for leased roads . . . . .	50,442,830	48,585,352	+ 1,857,478
Interest on funded debt . . . . .	27,777,736	28,800,564	— 1,022,828
<b>TOTAL DEDUCTIONS FROM GROSS INCOME</b> . . . . .	80,552,608	79,325,731	+ 1,336,158
<b>NET INCOME</b> 101,378,513		82,507,613	+18,952,324
Disposition of net income:			
*Dividend appropriations of income (8 per cent) . . . . .	46,835,965	38,171,621	+ 8,664,344
Income applied to sinking and other reserve funds . . . . .	4,962,852	4,634,803	+ 328,049
Surplus for year carried to profit and loss . . . . .	48,925,596	38,950,928	+ 9,974,667

\* (7 per cent in 1928)

**SALT LAKE UNION DEPOT.—Directors.**—Imer Pett, manager of Ross Beason & Co., and Harold P. Fabian, an attorney, both of Salt Lake City, Utah, have been elected members of the board of directors succeeding E. W. Mason, vice-president and general manager, and Charles Elsey, executive vice-president of the Western Pacific.

**WHEELING & LAKE ERIE.—Acquisition.**—This company has been authorized by the Interstate Commerce Commission to intervene in the proceedings on the application of the Pittsburgh & West Virginia for authority to acquire control of the Wheeling & Lake Erie and the Lorain & West Virginia, which has been assigned for hearing on June 9.

#### Average Prices of Stocks and of Bonds

	Last Apr. 1	Last week	Last year
Average price of 20 representative railway stocks . . . . .	138.06	136.78	128.29
Average price of 20 representative railway bonds . . . . .	94.21	94.78	90.53

#### Dividends Declared

Delaware, Lackawanna & Western.—\$1.50, quarterly, payable April 21 to holders of record April 5.  
Norfolk & Western.—Adjustment Preferred, \$1.00, quarterly, payable May 19 to holders of record April 30.  
Northern Pacific.—1½ per cent, quarterly, payable May 1 to holders of record April 10.  
Reading Company.—Common, \$1.00, quarterly, payable May 8 to holders of record April 10.

## Railway Officers

### Executive

**James C. Rankine**, superintendent of telegraph of the Great Northern, has been promoted to assistant to the vice-president in charge of operation, with headquarters as before at St. Paul, Minn., succeeding **J. A. Cochrane**, who has been granted a leave of absence. Mr. Rankine has completed nearly 30 years in railway telegraph service. He was born at Milwaukee, Wis., on June 29, 1880, and gained his first railroad experience on July 1, 1900, as a tele-



J. C. Rankine

graph operator on the Wisconsin Central (now part of Minneapolis, St. Paul & Sault Ste. Marie). Later he was employed as a telegraph operator on a number of roads, entering the service of the Great Northern in 1904 in the telegraph department. In 1910 Mr. Rankine was advanced to chief clerk of that department, then being promoted to telegraph and telephone valuation engineer of the Great Northern in 1915. In the following year he became assistant superintendent of telegraph, being promoted to superintendent of telegraph in the fall of 1916. Mr. Rankine's further promotion to assistant to the vice-president became effective on April 1.

**A. E. Lloyd**, who has been promoted to assistant to the vice-president in charge of operation of the New York Central, with headquarters at Chicago, has been connected with that road for 38 years. He was born at Wickliffe, Ohio, and attended the public schools in that vicinity. Later he graduated from a university course in law and was admitted to the bar in Ohio. Mr. Lloyd entered railway service in 1892 as a telegraph operator on the Lake Shore & Michigan Southern (now a part of the New York Central) and was then advanced to train dispatcher. In 1903 he became a trainmaster on the New York Central at Dunkirk, N. Y., then



being transferred to Cleveland, Ohio, and to Buffalo, N. Y. In 1916 he was promoted to assistant superintendent of the Michigan division at Toledo, Ohio. In the following year he was transferred to the Erie division at Erie, Pa., and



A. E. Lloyd

in 1918 to the Alliance division at Alliance, Ohio, and again to the Western division at Chicago later in the same year. Mr. Lloyd's further promotion to assistant to the vice-president became effective on March 1.

### Financial, Legal and Accounting

**John B. Moffitt, Jr.**, auditor of freight traffic of the Pennsylvania, has been promoted to assistant comptroller, with headquarters as before at Philadelphia, Pa., and **James T. Davis**, assistant auditor of freight traffic, has been appointed to succeed him. Mr. Moffitt was born in Philadelphia on December 21, 1878,



John B. Moffitt, Jr.

and was educated in the public schools of that city. In 1894, he commenced his railway career as a junior clerk in the office of the auditor of passenger traffic of the Pennsylvania. Four years later he was transferred to the comp-

troller's office as a clerk, and on March 1, 1905, he was assigned to a similar position in the office of the auditor of miscellaneous accounts. On October 1, 1906, he was promoted to special agent in that office, and the following year he was appointed to special agent in the office of the comptroller. On May 1, 1909, he became chief clerk to the comptroller. When the accounting department was re-organized on January 1, 1917, Mr. Moffitt was promoted to assistant auditor of freight traffic, which position he held under the United States Railroad Administration. At the conclusion of Federal control on March 1, 1920, he was appointed auditor of local freight traffic, with jurisdiction over the territory east of Pittsburgh, and on March 1, 1922, his authority was extended to cover the entire system. He was promoted to auditor of through freight traffic on July 1, 1925, and auditor of freight traffic on December 1, 1927, the position he held until his recent appointment.

Mr. Davis was born in Philadelphia, Pa., on May 16, 1876, and was educated



James T. Davis

in the Pierce School of Business Administration and Temple University, both of Philadelphia. He commenced his career as a railroad man in the accounting department of the Pennsylvania, on November 1, 1892. After serving in various clerical capacities he was appointed chief clerk in the office of the auditor of merchandise traffic, on June 1, 1912. In April, 1919, he was assigned to the office of the special representative to the Secretary of War at Washington, D. C., as traffic manager. He returned to the Pennsylvania in November, 1919, and re-assumed his former duties. In the re-organization of the accounting department incident to the return of the railroads to corporate management, Mr. Davis was appointed chief accountant to the auditor of local freight traffic, and on May 1, 1927, he was advanced to assistant auditor of local freight traffic. On December 1, 1927, he became assistant auditor of freight traffic, which position he now vacates to serve as auditor of freight traffic.

### Operating

**J. F. Grodzki** has been appointed scale inspector of the Oregon-Washington Railroad & Navigation Company at Portland, Ore.

**A. W. McKay**, assistant superintendent of telegraph of the Great Northern, with headquarters at Spokane, Wash., has been promoted to superintendent of telegraph, with headquarters at St. Paul, Minn.

**W. C. Beck**, assistant superintendent of the Canadian Pacific at Brownville Jct., Me., has been assigned to a similar position on the Laurentian division, with headquarters at Three Rivers, Que., succeeding **G. A. Bowler**, transferred.

**C. G. Sibley** has been promoted to assistant general manager of the Atlantic Coast Line, with headquarters at Wilmington, N. C., and **O. H. Page**, superintendent of transportation of the third division at Jacksonville, Fla., will succeed him as general superintendent at Rocky Mount, N. C. **F. B. Langley**, district superintendent at Ocala, Fla., will succeed Mr. Page as superintendent of transportation at Jacksonville, Fla. **F. A. Hansard** has been appointed district superintendent at Ocala, Fla., and **L. E. Windham**, has been appointed trainmaster at Tampa, Fla.

**I. A. Macpherson** has been appointed superintendent of the Canadian National at Regina, Sask., and **D. W. Steeper** will succeed Mr. Macpherson as superintendent at Saskatoon. **J. J. Napier**, superintendent at Brandon, will succeed Mr. Steeper as superintendent at Melville. **J. A. Rogers** has been appointed superintendent at Prince Albert, and **C. H. Brown** will succeed Mr. Rogers as assistant superintendent at Saskatoon. **G. H. Linney** has been appointed assistant superintendent at Edmonton, Alta., and **R. G. Russell**, assistant superintendent at Smithers, B. C., will succeed Mr. Linney as assistant superintendent at North Battleford, Sask.

**W. C. Owen** has been promoted to superintendent of freight service of the Canadian National, with headquarters at Montreal, Que., succeeding **G. N. Goad**, who was appointed acting chief of car service on the death of **F. Price**. **W. J. Donally**, assistant superintendent at Brantford, Ont., will succeed Mr. Owen as terminal superintendent at Winnipeg, Man. **E. W. Cameron**, assistant superintendent has been transferred from Moose Jaw, Sask., to Brantford, and **W. J. McNabb**, general yardmaster at Port Arthur, Ont., has been appointed assistant superintendent at Moose Jaw.

**Frederick W. Brown**, assistant general manager of the Atlantic Coast Line at Wilmington, N. C., has been promoted to director of transportation, in charge of all freight and passenger service, with headquarters at the same point. Mr. Brown was born in New

Canaan, Conn., on February 17, 1872. He entered railroad service in June 1887, as clerk for the New York, New Haven & Hartford, serving successively to 1906 as clerk, operator, dispatcher, chief dispatcher, trainmaster, chief clerk to the superintendent and assistant superintendent. From 1906 to 1920 he was in the service of the Southern, serving as dispatcher, trainmaster, superintendent of terminals, superintendent, chief in charge of the train tonnage bureau, assistant to the general manager, assistant to the vice-president and staff officer. Mr. Brown entered the service of the Atlantic Coast Line in March, 1920, as assistant to the general manager, and in April, 1929, he was appointed assistant general manager, the position he held until his recent appointment.

**J. C. Austin** has been promoted to assistant to vice-president of the Southern, with headquarters at Washington, D. C., replacing **J. H. Stanfiel**, deceased. **L. F. DeRamus** will succeed Mr. Austin as general superintendent of the Queen and Crescent district, at Chattanooga, Tenn. **H. A. DeButts**, superintendent at Greensboro, N. C., will succeed Mr. DeRamus as general superintendent of the Piedmont district, at Danville, Va. **L. H. Woodall** has been appointed superintendent of the Danville division at Greensboro, and **R. C. Reid** will succeed him as superintendent of the Cincinnati, New Orleans & Texas Pacific (part of the Southern) at Somerset, Ky. **J. G. Clements**, superintendent at Atlanta, Ga., will succeed Mr. Reid as superintendent of the Alabama Great Southern (part of the Southern) at Birmingham, Ala., and **G. W. Adams**, superintendent at Selma, Ala., has been appointed superintendent of the Atlanta division, at Atlanta, Ga. **W. H. Wilmer** has been promoted to superintendent of the Mobile division, with headquarters at Selma, Ala.

## Traffic

**J. P. Derham, Jr.**, has been appointed district freight agent on the Seaboard Air Line, with headquarters at Jacksonville, Fla.

**C. M. Tyler** has been appointed assistant freight traffic manager of the Southern, with headquarters at Jacksonville, Fla.

**W. W. Akers, Jr.**, has been appointed general agent of the Mississippi Central, Louisiana & Arkansas and Louisiana Railway & Navigation Company of Texas, with headquarters at Atlanta, Ga.

**S. A. Smith, M. W. Thomas** and **A. W. Sanders** have been appointed assistant general freight agents of the Central of Georgia, with headquarters at Savannah, Ga.

**W. M. MacPherson**, assistant general freight agent of the Delaware, Lackawanna & Western at Buffalo, N.

Y., has been promoted to assistant freight traffic manager with headquarters at the same point. The position of assistant general freight agent is abolished.

**Noel B. Wright**, freight traffic manager of the Central of Georgia, has been appointed traffic manager, a newly created position, and **Wilfred McNaught Knapp**, assistant freight traffic manager, will succeed him as freight traffic manager. **F. D. McConnell** has been promoted to assistant freight traffic manager, and **C. D. Chancellor** will succeed Mr. McConnell as general freight agent, all with headquarters at Savannah, Ga. Mr. Wright was born on February 27, 1876, at Greensboro, Green County, Ga. He was educated in the Green County school and business college at Atlanta, Ga., and entered railway service on August 24, 1896, as stenographer to the traveling freight agent on the Memphis & Charleston (now part of the Southern). The following year he became stenographer to the general agent on the Norfolk &



Noel B. Wright

Western at Atlanta, remaining in that position until October, 1898, when he became traveling freight agent on the same road. From December 1, 1905, to February 1, 1908, he served as chief clerk to the general freight agent on the Central of Georgia at Savannah, and on the latter date he was promoted to the position of assistant general freight agent. In January, 1911, he was appointed general freight agent for the same road and five years later he was promoted to assistant freight traffic manager. In 1928, he was appointed freight traffic manager, the position he held until his recent advancement.

Mr. Knapp was born at Atlanta, Ga., on October 3, 1883. He was educated in the public schools and entered railway service with the Clyde Charleston Fast Freight Line, in February, 1901, later serving with the New York & Texas Steamship Company. He entered the service of the Central of Georgia in September, 1904, serving in various positions until 1918, when he was appointed executive chief to the regional director of the Southern Region

of the United States Railroad Administration. In 1919, Mr. Knapp was appointed general freight agent at Savannah, and in the early part of last year he became assistant freight traffic manager.

## Obituary

**Charles Emerson**, master mechanic on the Northern Pacific at Tacoma, Wash., died on March 22. He had been in the service of that road for 46 years.

**Albert W. Whitney**, general agent for the Chicago & Eastern Illinois at Birmingham, Ala., died at Chicago on March 19.

**Henry G. McLean**, assistant to the foreign freight traffic manager of the Southern, with headquarters at Louisville, Ky., died at his home in that city on March 31, following an illness of more than a year. Mr. McLean who was forty-eight years old had been in the service of the Southern for thirty years.

**Henry LaRue**, formerly master car builder of the Chicago, Rock Island & Pacific, died in Glendale, Cal., on February 28. From 1914 until he retired in 1924 he served as senior inspector of equipment of the Bureau of Valuation of the Interstate Commerce Commission. While master car builder of the Rock Island, Mr. LaRue served as president of the Western Railway Club and president of the Car Foremen's Association, and in 1910 was a member of the arbitration committee of the Master Car Builders' Association.

**Clarence E. Stone**, former passenger traffic manager of the Great Northern, died at his home at Los Angeles, Cal., on March 25, following an appendicitis attack. Mr. Stone, who had been in railway work for 45 years, was born at Madison, Wis., on February 14, 1859. He gained his first railway experience at the age of 15 years as a freight brakeman on the Chicago, Milwaukee & St. Paul. Later he served as a telegraph operator on the Milwaukee, a telegraph operator and station agent on the Chicago, Burlington & Quincy, an assistant ticket agent on the Milwaukee at La Grosse, Wis., Minneapolis, Minn., and St. Paul, and city passenger and ticket agent on the Northern Pacific at St. Paul. In 1897 he was appointed general passenger agent of the St. Paul & Duluth. Three years later he became assistant general passenger agent of the Northern Pacific and in 1901 he was appointed assistant general passenger agent of the Great Northern. Mr. Stone was promoted to general passenger agent in 1905 and to general passenger traffic manager in 1915, all with headquarters at St. Paul. He retired from active duty in October, 1919, making his home in California in 1920. In 1908 he was elected to the Minnesota legislature, serving three successive terms as a member of that body.